National Library of Canada
Acquisitions and Bibliographic Services Branch
395 Wellington Street
Ottawa, Ontario
K1A 0N4

Bibliothèque nationale du Canada
Direction des acquisitions et des services bibliographiques
395, rue Wellington
Ottawa (Ontario)
K1A 0N4

Your file Votre référence

Our file Notre référence

NOTICE

The quality of this microform is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us an inferior photocopy.

Reproduction in full or in part of this microform is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30, and subsequent amendments.

AVIS

La qualité de cette microforme dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de qualité inférieure.

La reproduction, même partielle, de cette microforme est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30, et ses amendements subséquents.

Canada

UNIVERSITY OF ALBERTA

DETERMINANATS OF RELATIVE CLAUSES IN ENGLISH: ANIMACY, GIVEN/NEW, AND GRAMMATICAL ROLE OF THE RELATIVE PRONOUN

BY

© DARRELL WILLIAMS

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

in

Psycholinguistics

DEPARTMENT OF LINGUISTICS

EDMONTON, ALBERTA

Fall, 1994

National Library
of Canada

Acquisitions and
Bibliographic Services Branch

395 Wellington Street
Ottawa, Ontario
K1A 0N4

Bibliothèque nationale
du Canada

Direction des acquisitions et
des services bibliographiques

395, rue Wellington
Ottawa (Ontario)
K1A 0N4

Your file Votre référence

Our file Notre référence

The author has granted an irrevocable non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of his/her thesis by any means and in any form or format, making this thesis available to interested persons.

L'auteur a accordé une licence irrévocable et non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de sa thèse de quelque manière et sous quelque forme que ce soit pour mettre des exemplaires de cette thèse à la disposition des personnes intéressées.

The author retains ownership of the copyright in his/her thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without his/her permission.

L'auteur conserve la propriété du droit d'auteur qui protège sa thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

ISBN 0-315-95135-4

Canada

UNIVERSITY OF ALBERTA

RELEASE FORM

NAME OF AUTHOR: Darrell N. Williams

TITLE OF THESIS: Determinants of Relative Clause Heads in English: Animacy, Given/New, and Grammatical Role of the Relative Pronoun

DEGREE: Master of Science

YEAR THIS DEGREE GRANTED: 1994

Permission is hereby granted to the University of Alberta Library to reproduce single copies of this thesis and to lend or sell such copies for private, scholarly or scientific research purposes only.

The author reserves all other publication and other rights in association with the copyright in the thesis, and except as hereinbefore provided neither the thesis nor any substantial portion thereof may be printed or otherwise reproduced in any material form whatever without the author's prior written permission.

Darrell Williams

Darrell N. Williams
7903 - 128 Ave.
Edmonton, Alberta
Canada T5C 1T6

July 19/94
Date

UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate studies and Research for acceptance, a thesis entitled

DETERMINANATS OF RELATIVE CLAUSES IN ENGLISH: ANIMACY, GIVEN/NEW, AND GRAMMATICAL ROLE OF THE RELATIVE PRONOUN

submitted by
DARRELL WILLIAMS

in partial fulfillment of the requirements for the degree of
MASTER OF SCIENCE
in Psycholinguistics

John T. Hogan
Dr. John T. Hogan, Supervisor

Dr. K. Holden, External

Dr. G. Prideaux

Dr. L. Stanford

12 July 1994
Date

Abstract

This study addresses the need for a unified account of the distribution of relative clause heads and the relative pronoun associated with them. Previous works have analyzed relative clause heads almost exclusively from either a syntactic, semantic, or functional perspective. The analysis presented here, however, is from a psycholinguistic approach and the factors investigated are taken from previous analysis which otherwise have nothing in common.

In the first of three experiments, subjects were given pairs of sentences that contained the same lexical items and expressed essentially the same semantic information. Of the two sentences, one had a relative clause head that was coreferenced with the subject of the relative clause and the other with the object of the relative clause. Clause heads were either given/human, given/inanimate, new/human, or new/inanimate. It was found that in isolation, subjects expressed preferences for relative pronouns which are in accord with the accessibility hierarchy. However, once the stimuli were placed within discourse, it was discovered that subjects expressed preferences based on semantic/functional attributes of the relative clause head rather than syntactic attributes of its relative pronoun.

The value of this work is not limited to its explication of speakers' preference for certain types of relative clause heads in English. It also demonstrates a need for integrated approaches to linguistic analysis and stresses the value of psycholinguistic methodologies which permits exploration of the motivation behind linguistic phenomena by relating them to cognitive process which are based on psychological principles.

Acknowledgements

I would like to thank the members of my commitee for their contributions. Their suggestions certainly improved the quality of this work. I would also like to thank the Department of Linguistics for providing financial support and my family for providing moral support. Mostly, I would like to thank my supervisor, Dr. J.T. Hogan. I can not begin to express what his patience and steady support has meant. I hope any future research I undertake will embody his wisdom and foresight.

Table of Contents

Chapter I Introduction and Theoretical Prerequisites 1

1. Introduction 1
2. Some psycholinguistic considerations 2
3. Conclusion 5

Chapter II Defining the Issues 6

1. Introduction 6
2. Traditional generative grammar analysis of relative clauses in English 6
3. Relative clauses in English and the Accessibility Hierarchy 8
4. Semantic/Functional approaches to relative clauses in English 11
5. Psycholinguistic analysis of relative clauses in English 15
6. Conclusion 16

Chapter III Methodology and Results 19

1. Introduction 19
2. Experiment 1 19
    - 2.1 Subjects 21
    - 2.2 Materials and procedures 21
    - 2.3 Scoring and statistical tests 22
    - 2.4 Results and discussion 23
3. Experiment 2 24
    - 3.1 Subjects 25
    - 3.2 Materials and procedures 25
    - 3.3 Scoring and statistical tests 26
    - 3.4 Results 27

4. Experiment 3 29
4.1 Subjects 29
4.2 Materials and procedures 30
4.3 Scoring and statistical tests 30
4.4 Results and discussion 30
4.4.1 Main effects for experiment 3 30
4.4.2 Interaction effects for experiment 3 31

Chapter IV General Discussion and Conclusions 34
1. General discussion 34
2. Methodological considerations for further study 34
3. Theoretical limitations and their implications for further study 35
4. Conclusion 36

References 38

Appendix A 41
1. Tables of results for experiment 1 41
2. Tables of results for experiment 2 43
3. Tables of results for experiment 3 44

Appendix B 46
1. Instructions and stimuli for experiment 1 46
2. Instructions and stimuli for experiment 2 56
3. Instructions and stimuli for experiment 3 60

List of Tables

Table 1. Crossing of factors used in experiment 1 22

Table 2. Sentence patterns used in experiment 2 for heads with subject relative pronouns 26

Table 3. Sentence patterns used in experiment 2 for heads with object relative pronouns 26

Table 4. Summary of predictions made on the basis of previous analyses 37

Table 5. Analysis of data for experiment 1 using a 2-Way ANOVA with Repeated Measures 41

Table 6. Tukey HSD test of subject means in experiment 1 41

Table 7. Tukey HSD test of object means in experiment 1 41

Table 8. Tukey HSD test for interaction effect of experiment 1 42

Table 9. Results of Friedman Two-Way Analysis performed on 'subject' data of experiment 2 43

Table 10. Results of Friedman Two-Way Analysis performed on 'object' data of experiment 2 43

Table 11. Analysis of data for experiment 3 using a 2-Way ANOVA with Repeated Measures 44

Table 12. Tukey HSD test of subject means in experiment 3 44

Table 13. Tukey HSD test of object means in experiment 3 44

Table 14. Tukey HSD test for interaction effects of experiment 3 45

List of Figures

Figure 1. Average response in experiment 1 for each subject type 23

Figure 2. Average response in experiment 1 for each object type 23

Figure 3. Average response in experiment 1 for subject types by each object type 24

Figure 4. Overall rankings in experiment 2 for sentences with heads co-indexed with subject relative pronouns 27

Figure 5. Overall rankings for sentences with heads co-indexed with object relative pronouns 28

Figure 6. Average response in experiment 3 for each subject type 31

Figure 7. Average response in experiment 3 for each object type 31

Figure 8. Average response in experiment 3 for subject types by each object type 32

Chapter I
Introduction and Theoretical Prerequisites

1. Introduction

This thesis is an examination of relative clauses in English. More specifically, it is concerned with the examination of the various factors which govern the occurrence of relative clause heads and their associated relative pronouns. A relative clause head is that element in the main clause which is syntactically and semantically related to a relative pronoun which occurs, either overtly or tacitly, within in the relative clause (Ross 1967; Grosu 1981). Traditionally, relative clause heads and their relative pronouns have been considered from either a strictly syntactic (Ross 1967; Chomsky 1965), semantic (Rosenbaum 1978), or functional perspective (Fox 1987). Thus, the full range of factors which influence the occurrence of relative clauses have yet to be explored in combination.

Rather than adopt such a restricted approach, I chose to examine relative clauses from a psycholinguistic perspective which does not assume that the function of a linguistic structure is necessarily autonomous from its syntactic and semantic properties. By using a psycholinguistic approach, it is possible to exploit the processing strategies of given/new and markedness. These two stratagies perform the important function of uniting such disparate factors as *empathy* (Kuno 1976), *grammatical relation* (Keenan & Comrie 1977, 1979), and *anchoring* (Fox 1987; Du Bois 1987) It is these the three factors which are considered primarily responsible for governing the organization of relative clauses in English.

Whereas previous analyses have largely relied on data taken from text counts, the focus of this analysis is on data gathered under experimental conditions. Thus, it was possible to ensure that subjects responded to the stimuli and the factors rather than to extraneous, and uncontrollable variables such as style and register. Subjects were presented with sentences containing all possible combinations of given/new, animacy, and subject/object and asked to select which sentences they preferred. In order to determine the effect of grammatical role, two experiments employed sentences presented in isolation. A third experiment, which explored the impact of discourse related factors, used sentences presented as part of a short written discourse.

The conclusions drawn in this paper do not wholly support any previous analyses. The specific cognitive strategies that are involved in processing a relative clause are largely dependent on the type of relative clause being presented. Specifically, the strategies employed by speakers are dependent upon the features of the relative clause head and the relationship of the clause to the preceding discourse. The results of the first two experiments indicate that speakers prefer

certain relative clause heads based on the grammatical role of the relative pronoun associated with them. However, this tendency is affected by the animacy and giveness of the relative clause head.

2. Some psycholinguistic considerations

Psycholinguistics has been used as a cover term for several, often disparate methodologies and theoretical approaches. Thus it is necessary to clarify the specific theoretical outline taken in this paper. At the heart of the theory is the concept that language is closely related to cognition. Although the relation between language and cognition has not yet been fully explored, it is embedded within a network of other cognitive activities. As such, language relies on general cognitive principles found in other areas of cognition. Among these are the principles of iconicity, closure, given/new, and bracketing (Prideaux & Baker 1986). Not all aspects of language make use of all principles to the same extent. Rather, different aspects or linguistic structures rely on different principles to different extents. Thus relative clauses may rely primarily, although not exclusively, on the given/new strategy whereas the distribution of adverbs may rely primarily on iconicity. It is not clear to what extent certain processing strategies are universal. However, this is an issue which will be addressed in the concluding remarks of this thesis.

Although the notion is intuitive for most linguists, it is difficult to define exactly what is meant by *relative clause*. Typically the term is applied to any clause which modifies a noun or noun phrase (Keenan & Comrie 1977). Psycholinguistics assumes that these clauses have certain properties (Prideaux & Baker 1986). Clauses have a subject NP and a verb which is either implicitly or explicitly marked with tense. Optionally, clauses may contain other types of NPs such as indirect objects or oblique objects. In addition, relative clauses may contain a relative pronoun. This pronoun refers to the head of the relative clause, an NP of the main clause in which the relative clause is embedded (Prideaux & Baker 1986). In (1a), the head is *the carving*. Here the head is the object of both the main clause and of the relative clause. Its position within the relative clause is marked by the relative pronoun *which*.

1 a. Matty burned the carving which Jason had made.
b. Jeff, whom Sheila gave the letter to, was not very discreet.

Any type of NP may potentially be relativized on. The relative pronoun associated with it may also have any grammatical function in a relative clause. For example, in (1b) *Jeff* is the subject of the main clause whereas the relative pronoun *whom* functions as an indirect object in the relative clause.

Relative clauses can be one of two types. Those relative clauses which serve to further delimit a referent are referred to as restrictive relative clauses

(Prideaux & Baker 1986; Keenan & Comrie 1977).

2 a. John petted the dog that was eating the apple.
b. John saw Fred, who was standing near the water.

In 2(a), *the dog* is a somewhat vague reference which is further delineated by the relative clause eating the apple. The other type of relative clause, exemplified in 2(b), is non-restrictive. It is said that these type of clauses do not further constrain the set of possible referents for the head noun. Such is the case in 2(b). Here, the referent of *Fred* is quite clear. The relative clause only introduces additional attributes of the head NP.

In addition to the basic syntax of the language, the manner in which the grammatical and semantic units of clauses are organized and conditions under which they occur are influenced by several processing considerations. One of the most important of these is *markedness* (Prideaux & Hogan 1993). If a structure has more than one form, the unmarked form is that which is considered typical and occurs more frequently than the other forms. The unmarked form is also expected to be easier to process than the marked forms (Prideaux & Hogan 1993). In English, the unmarked form, or normal form (Prideaux & Baker 1986), for clauses is SVO. Thus, 3(a), which conforms to this expectation, should be easier to process than 3(b).

3 a. Marcus liked the book.
b. The book, Marcus liked.

For relative clauses, the unmarked form is exemplified by 4(a). Here, the relative pronoun is in subject position and thus the clause retains the SVO word order basic to English. However, in 4(b), the relative pronoun is the object of the verb and thus the clause has a OSV order.

4 a. Marcus, *who called Jim*, paid for the dinner.
b. Marcus, *whom Jim called*, paid for the dinner.

Therefore, it has been asserted that relative clauses containing relative pronouns which are subjects are easier to process than those containing relative pronouns which are direct or indirect objects. This statement, however, assumes that all other properties of the clauses, both syntactic and semantic, are equal.

A second strategy discussed by Prideaux & Baker (1986) is *closure*. This strategy refers to the tendency speakers of English have to consider clauses as complete once they have met certain semantic and syntactic requirements. If spoken, 5(a) becomes a "garden-path sentence" (Prideaux & Baker 1986). That is, speakers tend to treat *John worried he was late* as a complete clause as a result of

two assumptions. One is *bracketing*, which will be discussed in a moment, and the other is because it contains a subject, verb, and object, the basic syntactic requirements of a transitive clause.

5 a. John, worried he was late, rushed out.
b. Marge, damn her anyway for marrying that man, took the painting.
c. Marge took the painting.

Thus, encountering *rushed out* requires speakers to reread the clause and reinterpret the syntactic roles originally assigned to its members. Similarly, closure can be violated by interrupting a clause as in 5(b). The interjection included in 5(b) makes it somewhat more difficult to process than 5(c). The same holds true for relative clauses. In 6(a) the clause *Conrad resembled his father* is discontinuous. Thus it is not as easy for speakers to establish closure for this particular clause as it is in 6(b).

6 a. Conrad, whom no one liked very much, resembled his father.
b. His father resembled Conrad, whom no one liked very much.

Thus, in order not to violate closure or normal form, thereby increasing processing difficulty, relative clauses should optimally be attached to the last NP of a clause.

A third strategy is *bracketing*, which is the expectation that the begining and/or the end of a processing unit will be marked (Prideaux & Baker 1986). As shown in 7(a) the end of a typical transitive clause is marked by the object or second NP. In the case of relative clauses, the beginning is marked with a relative pronoun. However, not all clauses contain an overt relative pronoun such as *which*, *whom* or *that*. In 7(a) there is no overt relative pronoun yet the relationship of the two clauses is clear.

7 a. The dog liked the food Jimmy bought him.
b. The dog walked into the room stunk.
c. The dog which was walked into the room, stunk.
d. The dog walked into the room that stunk.

However, in some cases it is necessary to include the relative pronoun in order to make a clause understandable. In 7(b), the absence of a relative pronoun results in an expression which is ambiguous or, at best, very difficult to process and is, therefore, rejected by speakers of English. However, once the relative pronoun is included, the clause is no longer ambiguous.

A discourse property important to this thesis is the notion of given/new information. Information which is considered as given is that which is already established either by the context of discourse, previously introduced into the

discourse, or referable because of the speakers' shared knowledge of the world (Prince 1981). According to Prideaux & Baker (1986), the subject of a clause typically represents given information. Thus, during discourse, 8(a) would be more expected than 8(b).

8 a. The boy hit a cat.
  b. A boy hit the cat.

9 a. The manager, who was very tired, forgot to lock-up the store.
  b. A manager, who was very tired, forgot to lock-up the store.

10 a. Kyle ate the pear that fell off the tree.
  b. Kyle ate a pear that fell off the tree.
  c. Kyle ate a pear that Mary had picked.
  d. Kyle ate the pear that Mary had picked.

Similarly, relative clause heads are expected to be definite if they are the subject of a main clause and indefinite if they are the direct object. Thus 9(a) is considered easier to process than 9(b). By analogy with main clauses, relative pronouns should refer to given information if they are the subject of a relative clause and should tend to refer to new information when they are the object of one. Thus 10(a) and (c), which conform to this pattern, should be easier to process than 10(b) and 10(d). Furthermore, since the head of these relative clauses is an object, and should thus encode new information, 10(c) should be the most preferred of all.

3. Conclusion

This chapter has served to introduce the issues and the theoretical framework most important to this thesis. The presentation of psycholinguistic constraints given above is restricted to only those aspects immediately related to relative clauses. Most important is the claim that, according to normal form, relative clauses are easier to process when the relative pronoun is the subject of the clause and not the object. However, several other processing strategies influence relative clauses, and their effects will have to be considered when creating stimuli.

In the following chapter a review of the literature outlining the various approaches taken in the study of relative clauses, their relative pronouns, and their heads is presented. Chapter 3 describes the methodology used to gather data and the results obtained. As well, the results are discussed and conclusions drawn from them. Chapter 4 ends with a discussion of the limitations present in this work and possible expansions of this research.

Chapter II
Defining the Issues

1. Introduction

This chapter is given over to a review of the literature concerning relative clauses, particularly those that focus on relative clause heads and relative pronouns. In reviewing previous analysis, the focus will be on identifying what factors are considered important to the issues at hand and how these claims have been validated.

2. Traditional generative grammar analysis of relative clauses in English

The most notable work done on relative clauses within a generative framework is Ross (1967). Ross used the notion of *islands* to explain the behaviour of relative clauses in English. Islands are syntactic constituents which are confined by two *bounding nodes* (Chomsky 1981). In English, a bounding node is a NP or S. An *island* then, is a constituent which is dominated by either a NP and an S, two NPs or two Ss. Thus, *kittens* in 11(a) is considered an island. It is dominated by a NP which itself is dominated by an S. However, the complete phrase *Jane's kittens*, in 11(b), is not an island since it is an NP which is only dominated by a single S.

11 a. $_{S}$[Mary disliked $_{NP}$[Jane's $_{NP}$[kittens]$_{NP}$]$_{NP}$]$_{S}$
b. $_{S}$[Mary $_{VP}$[disliked $_{NP}$[Jane's kittens]$_{NP}$]$_{VP}$]$_{S}$
c. *$_{S1}$[John liked kittens which$_{i}$ $_{S\text{-}rel}$[Mary disliked $_{NP}$[Jane's null$_{i}$]$_{NP}$]$_{S\text{-}rel}$]$_{S1}$.
d. $_{S1}$[John liked $_{NP}$[Jane's kittens]$_{NP}$ which$_{i}$ $_{S\text{-}rel}$[Mary disliked $_{NP}$[null$_{i}$]$_{NP}$]$_{S\text{-}rel}$]$_{S1}$.

The result of this constraint is that *kittens* in 11(c) can not be made the head of a relative clause. Such a movement would involve movement across an NP and an S node. However, *Jane's kittens* in 11(d) does form a felicitous relative clause head since the movement of it involves only crossing a single S node. Thus, Ross is able to account for the occurrence of relative clauses in English such as 11(d), while, at the same time, excluding those exemplified by 11(c).

The principle of island constraints permits the relativization of subjects, direct objects, indirect objects, and some oblique objects since, as shown in 12(a)-(d), these relativizations do not cross two bounding nodes. Conversely, this island constraint also prohibits, among other things, the object and subject of comparisons and genitive constructions from being relativized. These are shown in (13).

12 a. $_{s1}$[John saw $_{np}$[the dog]$_{np}$ which$_i$ $_{s2}$[$_{np}$[null$_i$] chased the cat]$_{s2}$]$_{s1}$.
b. $_{s1}$[John saw $_{np}$[the cat]$_{np}$ which$_i$ $_{s2}$[the dog chased $_{np}$[null$_i$]$_{np}$]$_{s2}$]$_{s1}$.
c. $_{s1}$[John saw $_{np}$[Bill]$_{np}$ to whom$_i$ $_{s2}$[Mary sent the letter $_{np}$[null$_i$]$_{np}$]$_{s2}$]$_{s1}$].
d. $_{s1}$[John visited $_{np}$[the park]$_{np}$ that$_i$ $_{s2}$[Mary ate lunch $_{pp}$[in $_{np}$[null$_i$]$_{np}$]$_{pp}$]$_{s2}$]$_{s1}$.

13 a. $_{s1}$[John hates $_{np}$[math]$_{np}$ which$_i$ $_{s2}$[Mary likes $_{np}$[$_{np}$[null$_i$]$_{np}$ better than linguistics]$_{np}$]$_{s2}$]$_{s1}$.
b. ?$_{s1}$[John hates $_{np}$[linguistics]$_{np}$ which$_i$ $_{s2}$[Mary likes $_{np}$[math better than
$_{np}$[null$_i$]$_{np}$]$_{np}$]$_{s2}$]$_{s1}$.
c. *$_{s1}$[John hates $_{np}$[Jane's]$_{np}$ which$_i$ $_{s2}$[Mary borrowed $_{np}$[$_{np}$[null$_i$]$_{np}$ book]$_{np}$]$_{s2}$]$_{s1}$.

Although most sentences of the type exhibited in 13(c) are considered as unacceptable by most speakers of English the same can not be said for 13(a) and (b). For most speakers, 13(a) is perfectly acceptable and as is, to a lesser extent, 13(b).

Since proposed by Ross (1967), certain aspects of the Island Constraints have been criticized by generativists. However, these criticisms center, for the most part, on the relation of islands constraints to the abstract transformation move-α (Grosu 1981), an issue which is unimportant to this thesis. Linguists working in non-generative frameworks, on the other hand, have criticized rules such as the island constraints, claiming they lack psychological validity. For a generativist, however, this validity is asserted because they contend that notions such as bounding nodes are psychological constructs (Chomsky 1981).

Several exceptions to Ross' Island Constraints serve to show the fundamental flaw inherent in traditional generative grammar analysis. As pointed out by Cattell (1979), sentences such as those in 14(a) can, in some instances, override the island constraints.

14 a. Which car did you like the gears in?
b. $_{s1}$[You liked $_{np}$[the gears in $_{np}$[which car]$_{np}$]$_{np}$]$_{s1}$].
c. *Which car did you like the girls in?

As shown in 14(b), the movement of *which car* requires crossing two bounding nodes. Yet 14(a) is perfectly acceptable. Cattell claims that it is the part/whole relationship of *gears* to *cars* which allows for the extraction of car. However, in 14(c) *girls* is not a subpart of *car* and, therefore, it can not be topicalized. If

Cattell's analysis is correct, as it appears to be, then island constraints are subject to semantic/pragmatic factors. Attempts to characterize the additional rules needed to account for data such as (14) in syntactic terms have met with considerable argument (Kuno 1976, 1987).

3. Relative clauses in English and the Accessibility Hierarchy

It has been accepted by many linguists that the distribution of relative clauses in English conforms to a specific pattern. That is, relative clauses such as those in 15(a) are more common than those such as in 15(b) which are more common than those as in 15(c), and etc.

15 a. John kicked Bill who was eating his toast.
b. John kicked Bill whom the cat liked very much..
c. John kicked Bill whom Mary had sent the letter to.
d. John kicked Bill whom Mary was sitting beside.
e. John kicked Bill whom Mary liked more than Jack
f. John kicked Bill whose cat Mary liked more than Bill.

Further, it has been claimed that the acceptability of a particular type of relative clause is determined by the semantic or grammatical role of the relative pronoun which is co-indexed with the relative clause's head noun (Keenan & Comrie 1977, 1979; Beaman 1987). In 15(a), the head noun of the relative clause, which is *Bill*, is the subject of the verb *eat*. In 15(b), *Bill*, is the direct object of *like* and in 15(c) is the indirect object of *sent*.

Keenan & Comrie (1977, 1979) organize the semantic and syntactic roles responsible for the distribution of relative clauses in English into the following hierarchy.

Subject > Direct object > Indirect objects > Oblique object >
Genitive object > Object of comparison

Subjects, which are the uppermost node of this hierarchy, referred to as the Noun Phrase Accessibility Hierarchy (AH), are the most accessible type of noun phrases. Somewhat less accessible are noun phrases which are direct objects and even less accessible are those which are indirect objects. According to this hierarchy, noun phrases which are the object of a genitive construction are the least accessible.

Keenan & Comrie claim that an NPs position on the hierarchy indicates its inherent ease or difficulty in processing. Thus relative clause heads which are coreferential with a subject relative pronoun are more easily processed than those which are coreferential with an object relative pronoun. The basis of their claim is that in languages which permit relativization, relativization on the subject is always permitted. Secondly, any language which permits relativization on a

position lower than subject, also allows relativization on all positions between it and subject. The hierarchy, seems to apply in the more than 50 languages which Keenan & Comrie examined. Thus, it is considered to have universal application (Keenan 1975).

Several researchers have taken an empirical approach towards investigating the AH. However, as pointed out by Keenan & Hawkins (1987), many of these are primarily concerned with determining the order of acquisition of certain syntactic structures which include relative clauses. In their study, Keenan & Hawkins had children listen to relative clauses and then repeat them. They found that children made substantialy fewer errors when the relative clause head was co-referenced with a subject relative pronoun than with an object relative pronoun. This study, and others discussed by them, seem to offer some support for the AH in that children tend to use and comprehend relative clauses which contain subject relative pronouns earlier than those containing object or indirect object pronouns.

It is equally possible that the results obtained by Keenan & Hawkins are related to normal form. That is, the type of clause which the speakers responded best to contain subject relative pronouns. These clauses also have normal form, i.e. SVO. However, clauses containing object relative pronouns, which were the clauses speakers made more errors with, have the form OSV. The relation between the AH and the normal form stratagy has not been fully explored and is not considered by Keenan & Hawkins.

A more direct approach to examining the AH is taken by Beaman (1987). Although concerned with a variety of clauses types, Beaman's analysis does examine relative clauses, treating them as a special subtype of adjectival subordinate clauses. Among her conclusions is the finding that restrictive relative clauses are, overall, far more frequent than non-restrictive relative clauses. As well, it appears that restrictive relative clauses occur more often in written discourse than in spoken discourse. More than 78% of the relative clauses in the written narratives are restrictive. However, in the spoken narratives, only 59% of the relative clauses are restrictive. Beaman concludes that the two types of discourse differ in complexity. To further support the conclusion that different types of narratives make use of different types of clauses, Beaman points out that in her analysis, there is a difference in the frequency of non-restrictive relative clauses between texts written using a complex style and those adopting a simple style.

Beaman's measure of complexity is that given in Chafe (1982). Complexity is marked by extensive use of, among other things, subordinate structures, passives, and non-active subjects. Speech, considered here as a simple narrative, reflects a greater dependence on coordinate structures and makes more use of first and second person pronouns. It is only in this latter case that the frequency of occurrence for specific relative pronouns conforms to the predictions made by the AH. However, in authors considered to have a more complex style, there is a

higher frequency of direct object relative pronouns than subject relative pronouns. Here, then, the predictions made by the AH are not borne out. In spoken narratives, however, there are almost 3 times as many subject heads as object heads. Thus, it seems that the AH applies to only those types of discourse which are considered as syntactically simple and, hence, have a greater number of restrictive relative clauses. However, Beaman does not explore why the validity of the AH differs between the two types of discourse. Nor does she make it clear what, if any, properties of spoken speech causes a difference in the distribution of relative clauses. Nor does she explore the possibility that it is only the heads of restrictive relative clauses which conform to the AH.

A second finding of Beaman (1987) is that NPs such as the possesor and the possesum in genitive structures and subjects of comparison are rarely relativized. For several written and spoken corpora, oblique NPs, including indirect objects, comprised only about 10% of the relative pronouns. Instead, relativization tended to occur with subject and objects. However, for those authors judged to have a more complex style, there is an increase in relativization of these lower nodes. Thus the greatest difference in preference between two nodes is that between subject and object.

In a separate empirical study, Keenan (1975) attempted to confirm the AH by conducting a text analysis. The corpus of Keenan's analysis are several works of literature and an English newspaper which he designates as being either of a simple or complex style. Overall, Keenan's analysis demonstrates that differences in frequency for each type of relative pronoun conform to the AH. However, the differences are not significant. Keenan finds that complex narratives contain significantly fewer subject relative pronouns than do simple narratives and significantly more direct, indirect and oblique relative pronouns than simple narratives. Thus his findings are similar to Beaman (1987). Additionally, Keenan claims that 26% of the object relatives are derived subjects promoted by such processes as passivization.

As with Beaman (1987), Keenan (1975) finds that, in the corpus for spoken data and for text written by authors using a style he designates as simple, the lower positions of the accessibility hierarchy, including indirect objects, account for only 9% of the relative pronouns. In the data taken from the writings of those authors considered to have a complex style there is a higher number of these types of relative clauses. Of the total data, including simple and complex authors, these NPs form 20% of the relative pronouns. Again, the greatest difference between any two adjacent nodes is that between subject and object.

These two studies may be considered by some as evidence confirming the AH. However, the evidence supporting the AH is limited to "simple" types of narrative. Further, it is clear that these analysis continue to equate frequency of occurrence with difficulty in processing. No attempt is made to determine why subject NPs are more accessible, or easier to process, than object NPs.

Not all linguists embrace the notion of the AH and even those who accept the AH as valid, may not accept Keenan & Comrie's formulation of it (Maxwell 1979, Lehman 1986). Mostly, these arguments focus on the rules used to promote certain NPs to positions which are relativizable (Maxwell 1979). However, some question the ordering of the lower positions or the manner in which some of the lower positions are conflated. As pointed out by Maxwell, the hierarchy ignores the different types of genitives which occur in English.

16 a. The boys, (that) the fathers of whom played hockey, scored goals.
b. The boys, whose fathers played hockey, scored goals.
c. All the boys, (that) the fathers of whom played hockey, scored goals.
d. All the boys whose fathers played hockey, scored goals.

Clearly the genitive phrases in 16(a) and 16(b) are different syntactically and semantically. Consider adding ALL to the two expressions. The meaning of 16(c) is significantly different than that of 16(d). Although intended to show that the underlying forms of these two phrases are different, this example does serve to show that semantic properties of relative clauses are ignored by the AH.

More relevant to this thesis is the criticism of using subject and object to represent the first two positions on the hierarchy. It is claimed that notions such as subject and object although universally used, are ill-defined and are not substantive (Fox 1987). Generative linguists typically identify subject and object via case marking morphology present in the surface structure (Anderson 1976). Others prefer to define subject and object on the basis of their thematic roles, agent and patient (Fox 1987). Conflict arises then in such structures as passives where the subject is also the patient. Yet again, it has been suggested that these notions are theoretical primitives which are not definable (Perlmutter 1982). In any case, it has been claimed that the hierarchy is misleading and its terminology is vague (Fox 1987). More importantly, the division of subject and object may not be valid, particularly in the case of ergative/absolutive languages (Dixon 1979). Nowhere is the argument made more strenuously, at least as related to relative clauses, than in Fox (1987) to be discussed below.

4. Semantic/Functional approaches to relative clauses in English

In a very different approach, Kuno (1972, 1976, 1987) claims that only those NPs which are considered to be the theme of a relative clause can be relativized, i.e. made head of a relative clause. For example, in both 17(a) and (b) the relative pronoun is an oblique object, yet 17(a) is acceptable whereas 17(b) is not. Kuno (1976) claims that 17(a) is an acceptable construction because it is easy to interpret *the actress* as the theme of the relative clause while 17(b), on the other hand, is unacceptable because *the door* is not the theme of the clause. Instead, the theme of the relative clause in 17(b) is *John*. Since it is *John* which is relativized

in 17(c), the construction is acceptable.

17 a. Here is the actress that Mary painted a picture of.
b. *Here is the door that John knows the people at.
c. Here is John, who knows the people at the front door.

Kuno claims that, overall, the NP type which is most likely to be selected as topic is similar to that of the accessibility hierarchy. However, he contends that the potential for relativizing an NP is related to the degree to which a speaker can empathize with it. The degree to which a speaker can empathize with a NP is correlated, to some extent, with certain semantic properties, most notably its animacy and its status as given or new information. Kuno claims that speakers will tend to relativize or topicalize noun phrases that are human more readily than those which are non-human. Even less acceptable as theme are those NPs which are inanimate. Thus 18(a) and (b), which have animate heads, are more preferable than 18(c) and (d) which have inanimate heads.

18 a. Mary knew it was me that broke the vase.
b. Mary knew it was a friend that broke the vase.
c. Mary knew it was the dog that broke the vase.
d. Mary knew it was the earthquake that broke the vase.

However, Kuno (1972) also claims that NPs which are discourse anaphoric are more likely to be the theme of a relative clause than those which are discourse non-anaphoric. That is, those NPs which refer to entities already established in discourse are more likely to be selected as theme than those which represent new information. Thus, 18(a), which contains a head that is a pronoun, is more preferable than 18(b) which has a head that, although animate, is not necessarily discourse-anaphoric.

Also important to the potential of a NPs as theme is its status as list head. This is similar to the notion of whole expressed by Cattell (1979). According to the hierarchy and Kuno, 19(b), which has a direct object relative pronoun should be more acceptable than 19(c) whose head is associated with an oblique relative pronoun. However, 19(b) is clearly less acceptable than 19(c).

19 a. I saw the man that fractured his wrist in the car accident.
b. I saw the wrist the man fractured in the car accident.
c. I saw the car accident in which the man fractured his wrist.

Kuno (1987) claims that the difference in acceptability is because *the man* is a list head, and *the wrist* is an attribute. This is similar to what Cattell (1979) refers to as *part/whole*. Attributes, or parts, are the properties of a list head, or whole, which is

an entity or event. Thus, 19(c) is acceptable because *the car accident* refers to an entire event.

The attribute/list head constraint is similar to that of Cattell (1979) and the conclusion that list heads are more readily relativized is, to some extent, similar to that made by Deane (1991). However, Deane claims that relativizing an NP is dependent upon the degree to which it is activated according to the spreading activation model posited by Collins and Quillian (1969). Rather than refer to list heads, Deane posits an attribute/domain relation. Thus he agrees that the relativization of an NP is a result of it being the focus of attention. However, Deane also claims that in order to be the focus of attention, the remainder of the relative clause must be given and also part of the background. Two major differences, then, between Deane and Kuno, is that Deane does not consider the animacy of the relative clause head to be important and contends that a relative clause head will represent new information.

Kuno's analysis relies heavily on data from Japanese (1972). He has demonstrated that the particle *-wa*, used to mark sentence topic in Japanese, is primarily attached to those NPs which are being relativized. Kuno's work has, to some extent, been validated by Currah (1990) who demonstrated, among other things, that speakers tend to organize a description of an event around entities which are animate, and, more importantly, human. Similarly, Itagaki (1982) has shown that certain principles of Kuno's empathy hierarchy affect speakers' selection of subject in transitive clauses and, to a lesser extent, in passive clauses. However, with regard to relative clauses in English, the effect of Kuno's discourse principles are, for the most part, speculation.

As mentioned earlier, Fox (1987) objects to the AH on the grounds that it incorrectly divides grammatical roles into subject and object. Fox claims, instead, that grammatical roles for the upper positions of the AH should allow an ergative division. That is, the grammatical class of subject should be divided on the basis of the transitivity of the clause in which the subject occurs. Subjects of transitive clauses form a class separate from objects and subjects of intransitive clauses (Dixon 1979).

In her analysis of 200 relative clauses taken from spontaneous conversation, Fox finds an almost equal number of subject relative pronouns as object ones even though subjects outnumber objects 3:1 overall. This contradicts the AH which predicts a greater number of subject relatives than object relatives. Following Dixon (1979), Fox divides subjects in to S-relatives, those with intransitive subjects as in 20(a), and A-relatives, those with transitive subjects as in 20(b). Heads with object pronouns, as in 20(c), are then referred to as P-relatives.

20 a. Pat moved the shelf which was very dirty. (S-relative)
b. Pat moved the shelf which blocked the doorway. (A-relative)
c. Pat moved the shelf which John had painted. (P-relative)

Fox claims that in 68% of the S-relatives, the head is new information. The function of these clauses, Fox claims, is to introduce an entity into the discourse and characterize it in a way that makes it relevant to the discourse at hand, a process referred to by her as *anchoring*. Typically, this process involves relating the new information to an entity, the *anchor* (Fox 1987), which is already established in the discourse. In 21(B) *a bicycle* represents new information. However, it is linked to *his brother* because of the information expressed about it in the relative clause, specifically its location.

21 A: Why is Peter mad at his brother?
B: He ran over a bicycle that was parked in his brother's driveway.

22 A: Why is Peter mad at his brother?
B: He ran over a bicycle that his brother just bought?

Similarly in 22(B) *a bicycle* is linked syntactically and semantically to *his brother* which is the subject of the relative clause by the verb *bought*. Thus S-relatives have, in essence, the same function as P-relatives and should, therefore, be treated in the same manner.

Much of Fox's explanations of her data are based on *preferred argument structure* (Du Bois 1987) and *information flow* (Chafe 1987). Du Bois (1987) claims that in a simple transitive clause, only one NP is a full NP, the other is a pronoun. As pointed out by Prince (1981), pronouns represent the most given type of information. Moreover, according to Chafe (1976) and Givón (1984) subjects tend to represent given information more often than objects. Therefore, pronouns tend to occur in subject position rather than object position. Since subjects tend to be pronouns and thus represent given information, relative clause heads tend to be the object of the relative clause.

In his data, taken from naturally occurring conversation, Rosenbaum (1978) also does not find support for the AH. Like Fox (1987), Rosenbaum finds that the occurrence of subject relative pronouns is almost equal to that of object relative pronouns. Thus, Rosenbaum also claims that the AH is not an accurate predictor of the occurrence of relativization. Instead, Rosenbaum claims that it is semantic properties of the head which are responsible for the distribution of relative clauses in English. However, Rosenbaum considers the animacy of the head to be the sole semantic property responsible for the grammatical position of the relative pronoun coreferential with the head. In fact, in his corpus 83% of the heads which are human have subject relative pronouns, i.e. *I saw the girl who bought the cake*. Non-human heads, however, occurred with subject pronouns in 26% of all cases and object heads in 59% of all cases, i.e. *I saw the cake which the girl bought*. Rosenbaum, concludes, then, that the animacy of the head noun is a better predictor of relativization than is the AH.

Ard and Gass (1981), also explore the relationship between the animacy of the head noun and its position on the AH. However, their position is not as singular as that taken by Rosenbaum. Instead, Ard and Gass argue that the AH has some validity but it is modified by semantic properties of the head. To this end, they re-analyze Rosenbaum's data and show that of the human heads, 55% occur in subject position. Furthermore, they find that of the non-human heads, 42% occur in object position. Thus, they claim that there is an interaction between the AH and the animacy of the head noun. Ard and Gass had advanced English Language learners blend sentence pairs to form relative clauses. Subjects blended two sentences whose subjects were both human, both inanimate, or both non-human but animate. They found that when presented with two potential heads that were equal in terms of animacy, the frequency with which the various types of relative pronouns occurred conformed to the AH.

Hislop (1991), like Ard and Gass, contends that the AH has some validity but it is modified by properties of the relative clause head. However, Hislop expands her analysis to include, among other things, animacy of the head noun, its definiteness, and the type of relative clause it heads. Hislop's data is taken from papers written by two different groups of first year college students and from works published in an anthology. In general, Hislop finds that frequency of occurrence of object and subject relative pronouns conform to the AH. Additionally, Hislop reports that heads with subject relative pronouns tend to be non-restrictive relative clauses. For heads with object pronouns, however, there does not seem to be any such tendency. As well, she reports that human heads tend to be subject relatives and non-human heads tend to be object relatives. Surprisingly Hislop's analysis indicates that subject heads tend to be indefinite rather than definite whereas object heads tend to be definite. This is opposite to that which is expected by Fox (1987) and Prideaux & Baker (1986).

5. Psycholinguistic analysis of relative clauses in English

In their very extensive study of restrictive relative clauses, Prideaux & Baker (1986) employed a myriad of paradigms to examine which cognitive strategies are involved in their processing. Most importantly, it was shown that the type of strategy employed was, to some extent, specific to the particular task undertaken by subjects. Most relevant to this thesis are the results obtained from their acceptability studies. Prideaux & Baker employed three paradigms: category judgment, scaling judgments, and rank ordering. The stimuli used contained verbs that were either *reversible* or *non-reversible*.

23 a. The model married the photographer.
b. The photographer married the model.

24 a. The student wrote the paper.
b. *The paper wrote the student.

Reversibles contained a verb whose object and subject may be switched and still present an acceptable sentence, as is the case in (23). However, in (24), the verb is non-reversible and therefore 24(b) is not acceptable.

As expected, Prideaux & Baker found that the strategy of non-ambiguity was highly salient. Subjects rated reversible stimuli as less acceptable in almost all cases. To the contrary, non-reversibles were rarely rated as unacceptable. Somewhat unexpected was the non-confirmation of the closure strategy. This would have had subjects rate sentences with object heads more acceptable than those with subject heads. More to the point of this study are the results obtained for the given/new strategy and the normal form strategy, which refers to speakers' preferences for SVO structures in English.

It was found that for both types of stimuli, speakers rated as more natural or acceptable, those sentences with definite subject and objects. As well, speakers rated least acceptable those sentences with indefinite subject and objects. The importance of this result, as pointed out by Prideaux & Baker, is that in isolation, subjects must construct a context for stimuli. This task is easiest when the NPs are given. Another conclusion made here, is that relative clause heads tend to be given. This is opposite to the claim made by Fox (1987) who contends that given NPs tend to occur clause internally in order to anchor the head.

The normal form strategy was found to be highly significant. That is speakers rated sentences with unmarked structures such as those in (25) higher than those in (26).

25 a. Paul, who hated the neighbours' cat, petted the dog.
b. Paul petted the dog which hated the neighbours' cat.

26 a. Paul, who the neighbours' cat hated, petted the dog.
b. Paul petted the dog whom the neighbours' cat hated.

In (25), the relative clause maintains an SVO structure even when attached to the object of the main clause. Less preferred are those in (26) which do not have relative clauses with SVO structure. Again, this is in conflict with the claims made by Fox (1987) who claims that subject heads tend to have subject relative pronouns and object heads object relative pronouns.

6. Conclusion

In reviewing the literature related to relative clause heads, several major approaches to their analysis have been identified. The most dominant approach in the literature is the AH (Keenan and Comrie 1977, 1979). This approach claims

that the distribution of relative clauses, i.e. those with subject relatives vs. those with object relatives, is determined solely on the basis of their grammatical roles. Moreover, they claim that this distribution privileges relativization on subjects over all other grammatical roles. The reason for this preference, according to Prideaux & Baker (1986), is that relativizing objects violates the normal form strategy. However, the experimental evidence offered by Beaman (1987), Keenan (1987), and others, indicates that the effect of the AH is limited to simple discourse.

Other researchers contend that the AH is merely subject to the influence of other discourse factors (Kuno 1976; Ard & Gass 1981; Hislop 1991). Here the claim is that the semantic properties of the head noun determine the distribution of relative clauses. Kuno claims that heads must be the focus of the relative clause. He also contends that speakers find it easier to select as focus those NPs which are human and which are the subject of the relative clause. Ard & Gass (1981) claim that only animacy is relevant and that heads which are the object of the main clause tend not to be human. Hislop (1991) analysis concurs with that of Ard & Gass. However, in addition, Hislop's analysis indicates speakers prefer to make subject heads indefinite and object heads definite. Hislop's claim concerning definiteness and indefiniteness is contrary to the distribution of given/new information according to the principle of information flow (Chafe 1987) embraced by Fox (1987) and Prideaux & Baker (1986). According to Chafe, objects of a main clause tend to represent new information and subjects tend to represent given information.

Very few linguists tend to reject the AH altogether. Deane (1991) claims that relativization is licensed by, essentially, a part/whole relationship. The semantic properties of the head, such as animacy, and status as given/new information, are unimportant. In order to be relativized, the head must represent a domain which is a whole entity or event which the remaining NPs are a part of or related to. This concept is similar to that of the attribute/list head constraint developed by Kuno (1976, 1987). However, whereas Deane does not attach any importance to the animacy of the head noun, Kuno does. Rosenbaum (1978) also eschews the hierarchy, favoring instead only the semantic properties of the head, notably its animacy. Rosenbaum claims that human heads tend to be subject heads and object heads tend to be non-human as does Hislop (1991) and Ard & Gass (1981).

One short-coming of these studies is that they have failed to examine the extent that the information status and the animacy of the head noun and the grammatical role of the relative pronoun coreferential with it, interact. The studies reviewed above have all made claims as to the existence or non-existence of the influence these properties have on speakers' preference of relative clauses, but have not considered them relative to each other. As well, many of these analyses have failed to demonstrate why these factors influence the distribution of relative

clause heads (Hislop 1991; Rosenbaum 1978; Ard & Gass 1981; Keenan 1975; Keenan and Comrie 1979). The purpose of this study, then, is to examine the interrelation of these three factors and their relation to psycholinguistic processing strategies.

Chapter III
Methodology and Results

1. Introduction

In the preceding chapter, three distinct properties which affect the processing of relative clause heads are identified. These are; 1) grammatical position of the relative pronoun, 2) the degree of animacy of the head noun and, 3) the status of the head noun as given or new information. This chapter outlines the various methodologies employed to test empirically the theoretical claims made in the proceeding chapter. Three experiments were conducted, each one aimed at testing certain theoretical claims. This chapter outlines the motivation behind each experiment, the materials used in each experiment and the manner in which the experiment was carried out.

As already mentioned in chapter 1, certain properties of relative clauses are hypothesized to affect the ease with which they, and the main clause, are processed. These properties involve the strategies of normal form, closure, and bracketing. Thus, the effects of these strategies must be considered as possible confounding factors. In order to ensure the effects of these strategies are minimized and held constant for all stimuli, the stimuli used in all experiments had certain properties. All relative clauses used in this study were attached to the object of a simple transitive main clause, thus they did not interrupt the main clause. Moreover, the main clause conformed to the unmarked pattern SVO. Therefore, any difficulty in processing a sentence which is attributable to a violation of the normal form strategy is the result of the structure of the relative clause. Additionally, all sentences contained the relative pronoun, or complimentizer (Ross 1967), *that*. Thus, the onset of the relative clause is clearly marked in the same manner for all clauses and the potential for ambiguous, or garden-path, sentences is avoided.

2. Experiment 1

The purpose of this experiment is to test the claim that speakers prefer sentences with relative pronouns that are the subject of the relative clause rather than the object of it. Several researchers, including Keenan & Comrie (1977, 1979), Kuno (1976, 1987) and Prideaux & Baker (1986), make this claim. According to Kuno (1976) speakers find it easier to empathize with subjects rather than objects. Thus speakers find those sentences with relative clause heads having subject relative pronouns, such as those in 27(a) to be more natural than those in 27(b).

27 a. Jason saw the dog that bit the man.
b. Jason saw the man that the dog bit.

Prideaux & Baker, also predict the same distribution as Kuno (1976) since the relative clause in 27(b) violates the cognitive strategy of normal form. However, as discussed previously, it is expected that subjects' preference for subject relative pronouns over object relative pronouns will be modified by the animacy of the head noun with which the relative pronoun is coreferential (Kuno 1976). If this is the case, it is possible that speakers' preferences will conform to the following pattern:

Human Subject > Human Object > Inanimate Subject > Inanimate Object

Prideaux & Baker, on the other hand, do not consider the animacy of the head noun to be important. Instead, they posit the existence of a given/new strategy. Since this particular experiment involves speaker's examination of sentences which are independent of any context, exploring the given/new strategy is made somewhat difficult. However, several linguists claim that the definite and indefinite articles are correlated with given and new information (Chafe 1987). Entities already introduced into discourse tend to occur with a definite article, whereas those entities being introduced into discourse for the first time, tend to occur with an indefinite article. As pointed out by Löbner (1985), however, the correlation between given/new information and definite indefinite articles is not as clear cut. Often *the*, typically a definite article, is used to represent an indefinite or generic NP. However, we assume here that the correlation between given/new and definite/indefinite holds true. Therefore, since objects of a main clause tend to represent new information more often than subjects, speakers' preferences, if the given/new strategy has any effect, will conform to the following pattern:

Definite Subject, Indefinite Object > Indefinite Subject, Definite Object

The given/new strategy is also a principle of information flow (Chafe 1987) which Fox (1987) subscribes to. However, Fox challenges the claim that speakers prefer heads referenced with subject relative pronouns over those referenced with object relative pronouns. With respect to relative clauses that are transitive, Fox claims that those with subject relative pronouns are less preferred than those with object relative pronouns. In addition, Fox gives greater importance to the given/new principle, thus heads, especially object ones, should be new. Also, in accord with the principle of information flow is the idea that objects tend to be non-human. Thus, 28(a) would fit Fox's profile of a typical relative clause, preferable over 28(b) which has a human clause head.

28 a. Melanie wanted a box that Sherry was making.
b. Melanie knew a girl that Sherry looked like.
c. Melanie knew a girl that the spotlight had illuminated.
d. Melanie knew a girl that rode a horse.

Furthermore, Fox claims that the grounding NP should be human. Thus, 28(c), which has a definite non-human grounding NP, *the spotlight*, is the less preferred than 28(b) which has a definite, human grounding NP, *Sherry*. 28(d), which has a subject relative pronoun is the least preferable of the sentences in (28). Thus the pattern of results predicted by Fox is very different from that predicted by either Kuno (1976) or Prideaux & Baker (1986).

2.1 Subjects

Twenty undergraduate students enrolled in undergraduate linguistic courses at the University of Alberta volunteered to participate in this experiment. The participants were native speakers of English and were between 18 to 44 years of age with an average age of approximately 22 years. Of the 20 participants, only four were male.

2.2 Materials and procedures

The stimuli used in this experiment were organized around four types of subjects and four types of objects. Each type of object was paired with each type of subject. The result was 16 different types of stimulus items as shown in Table 1 on the following page. Each stimulus type was repeated three times for a total of 44 stimuli. Also included in the test items were 16 distracter sentences. Thus the task consisted of 60 test items in total. The test items were presented to subjects in booklets which were divided into three sections. Each stimulus type occurred once in each of the three sections. The order of presentation for the test items was made randomly, but once made, was consistent for all sections and for all test booklets.

For each test item, the subject was presented with a simple transitive sentence and two "paraphrases". In one paraphrase, the object was the head of the relative clause and in the other, the subject was the head of the relative clause. Thus test items had the following structure:

Ex. 1. The actor read the play.
a) Here is the actor that read the play
b) Here is the play that the actor read.

Subjects were instructed to read the "original" sentence carefully and then circle the letter corresponding to the "paraphrase" they felt was the most natural.

Table 1. Crossing of factors used in experiment 1.

Factor 1 Subject Types	Factor 2 Object Types	Sample Clause
L1. Subject, Given, Human (SGH)	L1. Object, Given, Human (OGH)	the doctor that examined the patient the patient that the doctor examined
	L2. Object, Given Inanimate (OGI)	the passenger that stopped the train the train that the passenger stopped
	L3. Object, New, Human (ONH)	the lady that met a little boy a little boy that the lady met
	L4. Object New, Inanimate (ONI)	a play that the actor read the actor that read a play
L2. Subject, Given, Inanimate (SGI)	L1. Object, Given, Human (OGH)	the rock that crushed the man the man that the rock crushed
	L2. Object, Given Inanimate (OGI)	the fire that destroyed the picture the picture that the fire destroyed
	L3. Object, New, Human (ONH)	the fan that cooled the man the man that the fan cooled
	L4. Object New, Inanimate (ONI)	the baseball that broke a window a window that the baseball broke
L3. Subject, New, Human (SNH)	L1. Object, Given, Human (OGH)	a student that hit the teacher the teacher that a student hit
	L2. Object, Given Inanimate (OGI)	a teenager that drove the car the car that a teenager drove
	L3. Object, New, Human (ONH)	a policeman that caught a criminal a criminal that a policeman caught
	L4. Object New, Inanimate (ONI)	a man that watched a TV show a TV show that a man watched
L4. Subject, New, Inanimate (SNI)	L1. Object, Given, Human (OGH)	a thorn that scratched the boy the boy that a thorn scratched
	L2. Object, Given Inanimate (OGI)	a shopping cart that dented the car the car that a shopping cart dented
	L3. Object, New, Human (ONH)	a plant that cheered up a patient a patient that a plant cheered up
	L4. Object New, Inanimate (ONI)	a lamp that lit up a room a room that a lamp lit up

In order to reduce sensitization to the paradigm by subjects, the test booklets also included a distracter task. The task consisted of subjects reading two parts of a short story, one each a the end of sections 1 and 2. At the end of section 3, was a set of questions pertaining to the short story but which were not relevant to the experiment.

2.3 Scoring and statistical tests

Responses were scored for speakers' preference of relative clauses containing subject relative pronouns. Each response indicating this preference was scored as 1. The scores for the three tokens of each stimulus type were then added

together to give a total raw score ranging between zero and three. Thus for each stimulus type, there were 20 observations, one for each participant. The total raw scores for all subjects were analyzed performing a Two-Way ANOVA with Repeated Measures (Ferguson and Takane 1989). In order to determine which cell means differed significantly, a Tukey HSD test was performed according to Winer (1971). The complete results of these analysis are given in Appendix A.

2.4 Results and discussion

Overall, participants preferred heads which were correferential with a subject relative pronoun in 751 instances of a possible 960. As shown in Table 5, appendix A, there is no significant interaction effect. On the other hand, both main effects were significant with $p<0.001$. As shown in Figure 1, the subject type most often preferred over all types of objects is SGI. However, according to the results of the Tukey HSD test, given in Table 6, Appendix A, SGI did not differ significantly from either SGH or SNI. The subject type least preferred when compared with all types of objects is SNH which differed significantly from all other means,

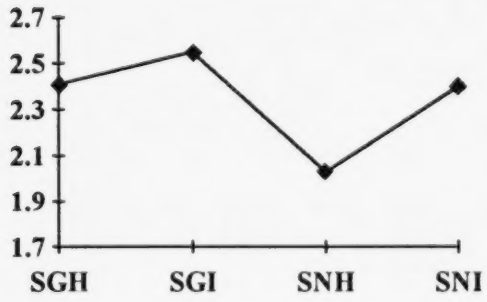

Figure 1. Average response in experiment 1 for each subject type

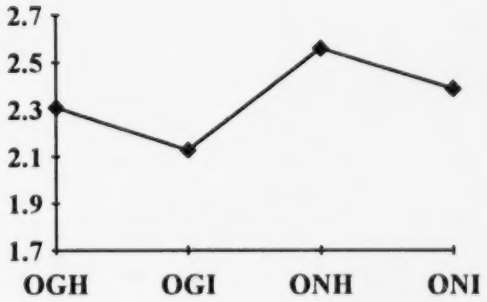

Figure 2. Average response in experiment 1. for each object type

Since responses were scored according to participants' preference for subject, low responses indicate greater preference for object relative pronouns. As shown in Figure 2, OGI was the object type which was most often preferred over a subject type. The least preferred type of object was ONH. The only significant difference was between the most preferred and the least preferred type.

The overall preference for sentences in which the subject is relativized rather than those in which the object is relativized supports the initial claim made by Kuno (1976). However, the least preferred type of clause heads, for either those with subject or object relative pronouns, are those which are human and indefinite (_NH) as in (29).

29 a. Here is a boy that broke the window.
b. Here is a window that the boy broke.

Thus the impact of the animacy hierarchy on preference for relative clause heads is, if not the opposite to what is expected, absent, or at best minimal. The most preferred type of relative clause head, particularly for heads co-referenced with object relative pronouns, are those which are inanimate and definite (_GI). This would seem to support the predictions made by Prideaux & Baker (1986) and Fox (1987) concerning the distribution of given/new information. Moreover, it tends to confirm that aspect of the information flow principle which claims that objects tend to be non-human. The reluctance of speakers to chose human nouns as heads also tends to confirm Fox's (1987) claim that human entities tend to occur in non-head positions so that they may ground the heads.

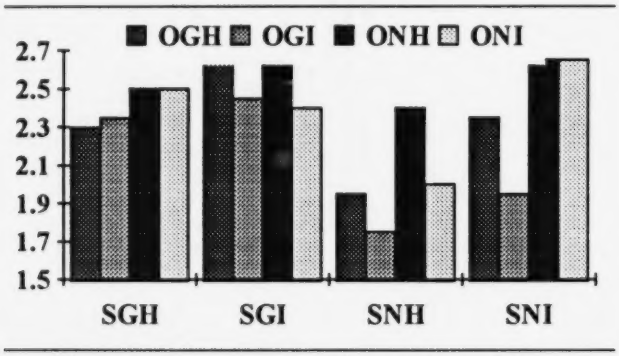

Figure 3. Average response in experiment 1 for subject types by each object type

Although the overall interaction effect was not significant, there were several significant differences between cell means. As shown in Figure 3, SNH, which is the least preferred according to the main effects, is significantly less preferred when paired with OGI than with ONH. This would seem to indicate two things. First, when all properties are equal, i.e. when both are inanimate and indefinite, then speakers prefer to relativize subjects. Second, speakers prefer to relativize definite object NPs rather than indefinite subjects.

3. Experiment 2

The previous experiment examined the conditions under which speakers prefer to relativize subjects over objects and objects over subjects. In analyzing the results it was found that overall, subjects preferred to relativize subjects over objects. However, this preference was modified to some extent by the definiteness of the head noun. That is, speakers preferred to relativize definite objects over indefinite subjects. Thus, for sentences presented in isolation, it would seem that definite NPs are the preferred relative clause head. The purpose of the second

experiment, then, is to check the reliability of the results obtained in experiment 1 and to determine if speakers exhibit a preference for one subject type over another or one object type over another.

According to Rosenbaum (1978), heads co-referenced with a subject relative pronoun tend to be human and those co-referenced with an object relative pronoun tend to be non-human. The latter prediction is supported by Ard & Gass (1981) and Hislop (1991). However, Ard & Gass claim that human entities occur equally with either type of head. Kuno (1976),on the other hand, predicts that both types of heads will tend to be animate. Fox (1987), claims that if anything, heads will tend to be inanimate, especially for those co-indexed with an object relative pronoun.

Prideaux & Baker (1986), who do not concern themselves with the animacy of a relative clause head, claim that speakers will tend to exhibit a preference for heads which are new, especially when they are co-referenced with an object relative pronoun. This is also what would be expected by Fox (1987). To the contrary, Hislop (1991) claims that definite heads tend to be co-indexed with object relative pronouns and indefinite heads with subject relative pronouns.

The preceding experiment would seem to indicate that animacy is more important for those heads referenced with subject relative pronouns than with object pronouns. However, overall, the strategy of given/new appears to be more important. Thus, speakers tend not to relativize NPs which are indefinite

3.1 Subjects

For this experiment, the participants were 20 undergraduate students enrolled in an introductory Spanish course at the University of Alberta. Only 6 of these students had attended a linguistics course, which was either a 100 or 200 level course. The students ranged in age from 18 to 27 with an average age of 21. Of the 20 subjects, 9 were males. Subjects were run as a single group and participation was voluntary.

3.2 Materials and procedures

In this experiment, subjects were presented with booklets divided into six sections. Each section contained eight stimulus items. Each of the three odd numbered sections had test sentences with heads coreferential with a subject relative pronouns and conforming to the patterns given in Tables 2 and 3. The three even numbered sections had sentences containing heads which were coreferential with an object relative pronoun. These sentences followed the pattern given in Tables 2 and 3. All sections in all test booklets had the same ordering of sentences.

In the previous study, and in experiment three, all factors were crossed to produce a set of stimuli which contained 16 sentences. However early pilot studies of the task used in this experiment revealed that speakers' ability to discriminate

between sentences was reduced when asked to rank more than 8 sentences. Thus, it was necessary to limit the manipulation of the non-head NP to one factor. Since the preliminary results of experiment 1 and several pilot studies indicated that an NP's definiteness were most important, it was this property of the non-head NP which was manipulated rather than the animacy of it.

Table 2. Sentence patterns used in experiment 2 for heads with subject relative pronouns

Sentence patterns	Sample
S1. Sub(indef., human) w/ Obj(def., inanimate)	a boy that delivered the paper
S2. Sub(def., inanimate) w/ Obj(def., inanimate)	the book that had the article
S3. Sub(indef., inanimate) w/ Obj(indef., inanimate)	a book that had an article
S4. Sub(def., human) w/ Obj(def., inanimate)	the boy that delivered the paper
S5. Sub(def., human) w/ Obj(indef., inanimate)	the boy that delivered a paper
S6. Sub(indef., human) w/ Obj(indef., inanimate)	a boy that delivered a paper
S7. Sub(def., inanimate) w/ Obj(indef., inanimate)	the book that had an article
S8. Sub(indef., inanimate) w/ Obj(def., inanimate)	a book that had the article

Table 3. Sentence patterns used in experiment 2 for heads with object relative pronouns

Sentence patterns	Sample
S1. Obj(def., human) w/ Sub(def., human)	the man that the mugger attacked
S2. Obj(indef., human) w/ Sub(indef, human)	a man that a mugger attacked
S3. Obj(def., inanimate) w/ Sub(def., human)	the shirt that the maid washed
S4. Obj(indef, inanimate) w/ Sub(indef., human)	a shirt that a maid washed
S5. Obj(def., inanimate) w/ Sub(indef., inanimate)	the shirt that a maid washed
S6. Obj(def., human) w/ Sub(indef., human)	the man that a mugger attacked
S7. Obj(indef., human) w/ Sub(def., human)	a man that the mugger attacked
S8. Obj(indef., inanimate) w/ Sub(def., human)	a shirt that the maid washed

Participants were instructed that for each section they were to find the sentence they felt was the most natural and score it as 1. Next, they were to determine which sentence in the section they felt was the least natural and score it as 8. They were then asked to rank the remaining sentences in the section accordingly. Participants were instructed to complete all ranking in one section before beginning the next section. As well, participants were reminded that all sentences may be considered acceptable but they were to try and rank them anyway.

3.3 Scoring and statistical tests

Those sections which contained heads associated with object relative pronouns were scored and analyzed separately from those sections containing heads associated with subject relative pronouns. Rankings for each instance of each stimulus type were added together to give a total raw score of between 3 and 24. The total raw scores for each participant were then analyzed. The statistic

recommended for the analysis of correlated ranked data is the Friedman Two-Way ANOVA for Related Measures (Winer 1971). This procedure provides an overall ranking of each stimulus type and determines a chi-square distribution. The results of these two analysis are given in Appendix A..

3.4 Results

The total cumulative ranking for each type of sentence containing relative clause heads indexed with a subject relative pronoun are given in Figure 4. Clearly S2 and S4 are the most preferred by speakers. That is, speakers preferred the patterns SGI with OGI and SGH with OGI, exemplified in 30(a) and 30(b) respectively.

30 a. Greg forgot to read the book that contained the article.
   b. Greg didn't recognize the boy that delivered the paper.

31 a. Greg watched a plumber that fixed the drain.
   b. Greg replaced a switch that controlled a living room light.
   c. Greg watched a plumber that fixed a drain.

Common to these two heads is the fact that they are both definite. Moreover, the objects of these relative clauses, in addition to being inanimate, were also definite. The least preferred, or lowest ranked sentence types were S1, S3, and S6, exemplified by 31(a)-(c). The heads in these sentences all are indefinite. Moreover, the objects of 31(b) and (c) are indefinite as well. The object of S1, however, is definite. Given that, in isolation, speakers tend to prefer definite NPs as heads, the combination of an indefinite head with a definite object may have seemed unnatural or unfavorable to speakers. This seems to be supported by the results for S5 and S7, both of which contain heads which are human. However, the co-occur with objects that are indefinite. Thus, these sentences are not preferred despite having definite heads.

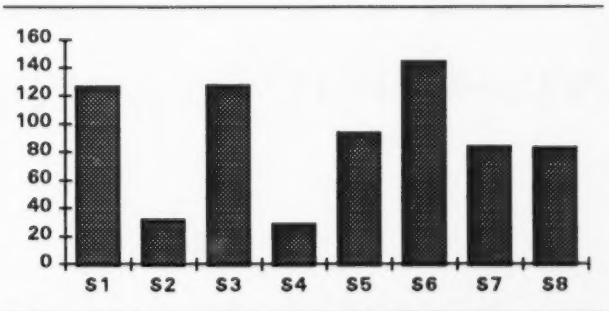

Figure 4. Overall rankings in experiment 2 for sentences with heads co-indexed with subject relative pronouns

Figure 5, presents the results for those sentences which had heads co-indexed with an object relative pronoun. The two types most preferred are S3, as in 32(a), and S1, as in 32(b).

32 a. Tim picked up the penny that the man dropped.
b. Tim fired the nurse that the patient didn't like.

32(a) has a head which is both given and inanimate and was preferred only slightly more than that in 32(b) which has a relative clause head that is given and inanimate. The least preferred types, although not by much, were S2 and S4, given in 33(a) and (b).

33 a. Leona fired a nurse that a patient didn't like.
b. Leona picked up a penny that a man dropped.

Both the heads in 33(a) and (b) represent new information, however the head in 33(a) is human and the head in 33(b) is inanimate. S7 and S8 are not preferred by speakers since they contain indefinite heads, and subjects within the relative clause which are also indefinite. The remaining two sentence types have definite heads but occur with indefinite subjects and were not preferred. Thus, speakers exhibit the same preference for heads associated with object relative pronouns as those with subject relative pronouns.

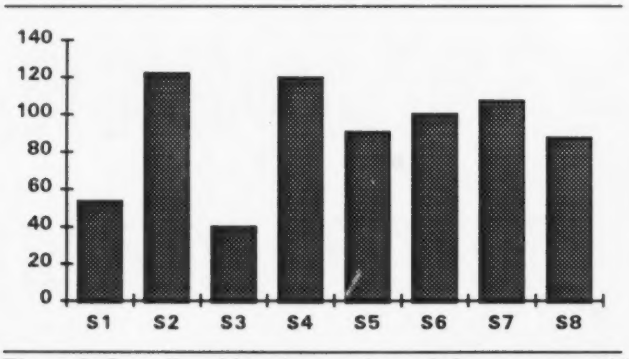

Figure 5. Overall rankings in experiment 2 for sentences with heads co-indexed with object relative pronouns

Clearly, the prediction made by Kuno (1972, 1976) is not supported by the results obtained here. The animacy of the head NP, or of any NP, was irrelevant. As well, the results can not be used to support the given/new strategy (Prideaux & Baker 1986) or the principle of information flow (Fox 1987). What is clear, however, is that speakers prefer, in isolation, those sentences which contain definite NPs. Moreover, this preference is not limited to the relative clause head. A possible explanation for this preference may be that definite NPs invite a context

for the speaker more easily than indefinite NPs (Prideaux & Baker 1986).

4. Experiment 3

A criticism that has repeatedly been made of experimental approaches to language is that they often involve examining language out of context. Kuno is quick to point out that his analysis should only be confined to speakers performance on "out of the blue contexts" (Kuno 1972:39). This does not invalidate his claims, but merely restricts the domain to which they can be applied. Fox (1987), on the other hand, insists that analysis focus on language as it occurs. As well, Prideaux & Baker (1986) raise the point that in the absence of a context, subjects may create their own, thus it is possible that in the previous study, discourse factors may have been present which the experimenter is unaware of.

The third experiment has several purposes. First, it will explore to what extent the conclusions made in Kuno (1976), as well as those made in experiment 1, can be generalized to relative clauses occurring in discourse. Second, this experiment will provide a better test of the claims made by Fox (1987) since they are based on data which occurs as part of a discourse. Third, and more important, this experiment will test the results of Hislop (1991), in which it is claimed that non-restrictive relative clauses tend to have their subjects relativized, while there is no preference for object or subject relativization in restrictive relative clauses.

Because of the importance of the given/new distinction to the claims discussed above, it is important to define given and new as used in this experiment. In the previous experiment, given/new was considered as analogous to definite/indefinite. However, here, *given* refers to any item which has already been introduced into the discourse and which also has a definite article preceding it. Conversely, *new* refers to an entity which has not been introduced into discourse and which is not immediately inferrable from the preceding discourse and which also has an indefinite article. Here, then, all clauses with definite heads are heads of non-restrictive relative clauses. Since the head is already established in the discourse, it does not require further identification and therefore, any information contained in the relative clause is merely an additional characterization of the head. Those clauses which contain indefinite heads, however, could potentially be either restrictive or non-restrictive. To ensure consistency, then, all clauses with indefinite heads were also restrictive.

4.1 Subjects

The participants in this experiment were 22 undergraduate students enrolled in linguistic courses at the University of Alberta. All subjects were native speakers of English and ranged in age from 19 to 37 years with an average age of 23. Only 2 of the 22 subjects were male. Subjects were paid $3.00 for completing a test booklet and were able to discontinue their participation at any time.

4.2 Materials and procedures

Subjects were presented with booklets containing a total of 48 stimulus items. The stimulus items contained three different instances of 16 stimulus types. As in experiment 1, each of the 16 stimulus types paired one of four object types with one of four subject types. Because of the length of the task, no distracter test items were present. The stimulus items were divided into three sections. Each section contained one instance of each stimulus type. The order of presentation for the stimulus items was determined randomly but was the same for all sections in all booklets.

For each stimulus item, participants were presented with a short paragraph which contained two sentences in bold face type. The bold face sentences contained the same lexical items. However, one sentence had the relative clause head co-referenced with a subject relative pronoun and the other sentence with an object relative pronoun. Subjects were asked to read the paragraph and then underline the boldface sentence which they felt was the most natural or which they preferred the most.

4.3 Scoring and statistical tests

As in experiment 1, responses were scored for preference of subject. Responses indicating a preference for sentences containing subject relative pronouns were scored as 1 and responses indicating a preference for object relative pronouns were scored as 0. Subjects' responses for each stimulus type were totaled for a total raw score of between 0 and 3 for each stimulus type. Overall, there were 22 observations for each stimulus type. A Two-Way ANOVA with Repeated Measures was used to determine what, if any, significant differences between preference between subject types and object types (Ferguson and Takane 1989). Where appropriate, a Tukey HSD test was used to determine significant between individual treatment means (Winer 1979). All results obtained are given in Appendix A.

4.4 Results and discussion

As shown in Table 11, Appendix A, both main effects are significant. Thus there is a strong preference for one subject/object type over another. As well, there is a significant interaction effect. Thus, preference for certain subject/object types is greatest under certain conditions. Overall, clauses containing subject relative pronouns were preferred in only 555 cases out of 1056.

4.4.1 Main effects for experiment 3

As shown in Figure 6, the subject type most often selected over all object types is SGH, as in *the man that Mary knew*. The least preferred subject type compared to all object types are SNH and SNI. The difference between the means

for SGH and for SNH and SGH are significant with $p < 0.05$. No other differences between means for the main effects were found to be significant. For relative clause heads with object relative pronouns, shown in Figure 7, ONH and ONI, as in *a man that Mary knew* and *a car that Mary owned*, were the most preferred. There was no significant difference between these two types. However, they did differ significantly from the other two main effect means with, at least, $p<0.01$. Similarly, the least preferred type of head with an object relative pronoun was the type OGI, as in *the car that the man sold*. This type of clause head differed significantly from all other types as did the remaining type OGH, which was neither the most or least preferred type.

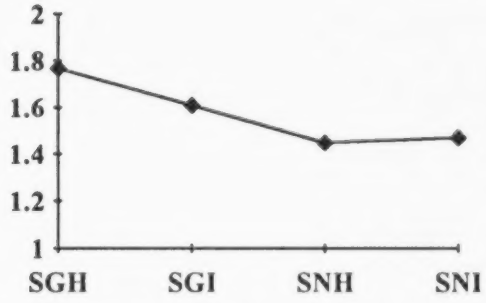

Figure 6. Average response in experiment 3 for each subject type

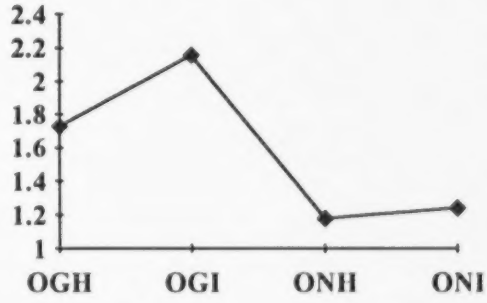

Figure 7. Average response in experiment 3 for each object type

Looking at the main effects, it is apparent that, when the stimulus sentence is a part of discourse, speakers do not prefer heads co-referenced with subject relative pronouns as was the case in experiment 1. Thus, there does not, at least here, to be any support for the AH or the strategy of normal form. Overall, the main effects tend to support Fox (1987), Prideaux & Baker (1986) and their notion of given/new. That is, objects tend to be new information, which equals indefinite here, and subjects tend to be given information. Additionally, the small but significant preference for SGH may indicate that non-restrictive clauses, i.e. those which were definite (_G_), tend to have subject relative pronouns (Hislop 1991). However, this is limited to only those heads which are also human. For heads co-referenced with object relative pronouns, there is no support for this hypothesis.

4.4.2 Interaction effects for experiment 3

Given in Table 14., Appendix A, is a complete analysis of the differences between all cell means for each level of subject paired with each level of object. To facilitate the interpretation of the interaction effects, the results of this analysis are graphed in Figure 8. Looking within each subject type it is clear that preference for relative clause heads with subject relative pronouns depend on the type of object they occur with. SGH is equally preferred most when paired with

OGH and OGI and equally least when paired with ONH and ONI. Similarly, SNH is preferred almost equally when paired with OGH and OGI, and to a significantly lesser extent when paired with ONH and significantly least when compared to ONI. For SGI, however, there was no significant difference between preference of subject when paired with OGH, ONH, and ONI. SNI, on the other hand, was preferred significantly more when paired with ONI than with ONH. No other differences in cell means differed significantly for SNI.

Looking across subject types, it is noticeable that the pattern of responses for SNI differ from those of SGH, SGI, and SNH. SNI is the only subject type most preferred when paired with ONI. SNH, on the other hand, is almost never preferred when paired with this same object type. Additionally, there was an overwhelming preference for subjects over OGI for all types except SNI. Despite these differences, preference for subject over ONH was virtually equal for all subject types and thus provides a good baseline by which the results can be judged.

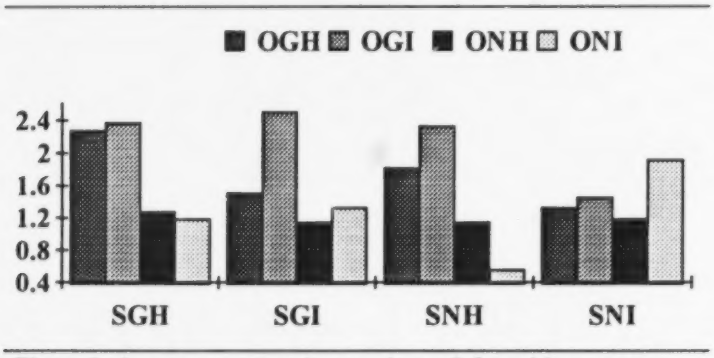

Figure 8. Average response in experiment 3 for subject types by each object type

If a null hypothesis was put forward for the interaction effects, it would be that the pattern of responses for all subject types would be the same. However, by examining the results given in Figure 8, this is clearly not the case. It appears that for SGH, SGI, and SNH, at least, speakers' preference to relativize the subject is diminished when the subject is paired with an object that represents new information, i.e. ONH and ONI. That the occurrence of an object representing new information reduces preference for subject indicates that for objects, at least, information status is an important feature to its potential for relativization.

However, if the same was true for relativizing subjects, then it would be expected that SGH and SGI would both be significantly preferred over objects representing given information, i.e. OGH and OGI. However, this is not necessarily the case. Instead, SGH and SNH conform to the pattern. Common to these two types of objects is their animacy. Both SGH and SNH refer to human entities. Thus, it appears that for subjects, animacy is the primary factor speakers

consider when evaluating a subjects potential as a head.

The preference to relativize subjects, at least SGH and SNH, is reduced when subjects are paired with an object that is inanimate, but it is not eliminated. The reason for this may be that the given/new strategy, as it applies to objects, is in competition with an overall tendency, such as normal form, to relativize subjects, regardless of their properties.

If the above conclusions are accurate, then we would expect the preference for SNI, which does not refer to a human entity, to be, overall, reduced, but not eliminated. This certainly seems to be the case in all instances except when SNI occurs with ONI where there is a slight significant preference for SNI. The reason for this may be because SNI and ONI share the same properties, except for their grammatical roles. Thus, all things being equal, subject should be the more preferred head. That this preference is not more pronounced may be due to the fact that SNI is neither animate, nor given, which, according to the given/new strategy, it should be.

That the given/new strategy has secondary importance is supported by the results for SGI. Here subjects prefer to relativize SGI when it is paired with OGI. Again, the situation arises where the subject and the object share the same properties except for grammatical role. The preference for subject here is more pronounced since the subject conforms to the given/new strategy and the object does not.

Following this same argument, then, it would be expected that SNH would be significantly preferred when paired with ONH. However, the tension between the two competing strategies results in an almost equal preference. For ONI, on the other hand, the situation is much different. ONI, conforms to the principle of information flow, not only in terms of given/new, but in terms of animacy as well. Moreover, the position in the main clause which is hosting the relative clause is that of object. Thus, there is the increased tendency to relativize that NP which is new and inanimate.

Chapter IV
General Discussion and Conclusions

1. General discussion

The results from all three experiments have shown that the three factors, animacy, given/new, and grammatical role of the relative pronoun, examined in this thesis do, to some extent, influence speakers' preferences for relative clause heads. As shown in experiments 1 and 2, there does seem to be some preference to relativize subjects rather than objects. This conforms to the prediction made by Keenan & Comrie (1979), Prideaux & Baker (1986), and Ard & Gass (1981). However, this is contrary to what is claimed by Fox (1987).

As well, the results of all three experiments indicate that preference for subjects over objects is modified by semantic factors. This finding is contrary to what is expected by Rosenbaum (1979) and Keenan & Comrie (1977, 1979). Rosenbaum predicts that only semantic properties need be used to predict the distribution of relative clause heads associated with either object or subject relative pronouns in English. Keenan & Comrie, on the other hand, predict that the distribution of relative clauses is strictly a matter of the grammatical role of the relative clause head's relative pronoun.

The factor found to have the most effect on the potential for relativizing objects is information status. Although this gave some validation to the given/ new strategy (Prideaux & Baker 1986) and the principles of information flow (Chafe 1979; Givón 1972; Fox 1987), it is limited. For subjects, it was of secondary importance that they represent given information. This may have been because the subjects were relativized to an object position in the main clause. Thus there would be a counter expectation which would diminish the expectations of the given/new strategy.

The notion of empathy (Kuno 1972, 1976) is also given limited support. For heads which were coreferential with a subject relative pronoun, animacy was an important feature. These heads tended to have human referents even though they were the object of the main clause which typically has an inanimate referent. Speakers did not seem to express the same preference with respect to heads coreferential with object relative pronouns. Thus the empathy principle seems to be limited. Why this principle is limited to one type of head is not apparent from this study.

2. Methodological considerations for further study

Although tasks which present stimuli in isolation are valid, their use is limited. In experiment 1 it was necessary to remove stimuli from context in order to examine the accessibility hierarchy and the cognitive strategy normal form.

However, employing a task in experiment 3 which was similar to that used in experiment 1 resulted in data that was not consistent with the previous two experiments. This difference was a result of the inclusion of context for the stimulus items presented to subjects.

It is also possible that some of the factors investigated here were related to other aspects of discourse not considered in this study. Among these, may have been the relation of the potential heads to the topic of the discourse, other lexical items contained in the discourse, or even to the speakers preferences and biases towards the world. These relations may have presented unseen and, possibly, confounding factors.

Originally, the stimuli used in this study were taken from spoken conversation. However, methodological pressures resulted in substantial alterations of the discourse. Although an attempt was made to ensure that all stimuli included sentences which were grammatical and, for the most part, acceptable, it is possible that some test items may have seemed contrived. If this is the case, it may have affected subjects' preferences for certain stimuli.

3. Theoretical limitations and their implications for further study

This study was limited to examining only three properties of relative clause heads, the grammatical role of their pronoun, their animacy, and their status as either given or new information. Further, each of these factors was treated as dichotomous and thus each factor had only two possible levels. However, each of these factors have multiple levels and only the extreme end points of each category were examined. As pointed out by Prince (1981), several researchers have expanded the notion of given/new to include at least 6 levels. Although some of those divisions may seem tenuous, it is certainly possible that given information may be that which is contextually established, i.e. something nearby, or an assumption shared by those participating in the discourse. As well, there is the more traditional notion of given which refers to those entities or events which have already been introduced into the discourse. However, this type of given information can further be subdivided into that which is currently the focus of the discourse, or that which is still within consciousness of the participants, but is not the immediate focus (Prince 1981). As well, given information may be that which is part of the participants shared knowledge of the world.

Although stimuli were carefully constructed so that given and new corresponded to definite and indefinite, this is not always the case. As pointed out by, Löbner (1985), phrases such as *the most wonderful thing* in 34(a) which has a definite article can represent an entity being introduced into the discourse for the first time.

34 a. I saw the most wonderful thing, yesterday.
b. A: I like that lamp. --- B: Really, I think it is a very ugly lamp.

Similarly, as shown in 34(b), phrases with an indefinite article can represent entities already established in the discourse. The degree to which speakers associate given and new information with the grammatical markers of definiteness or indefiniteness has not been explored. Thus it is possible that a violation of this strategy may effect speakers preference for relative clause heads.

This thesis was restricted to examining speaker's preference for relativizing subjects rather than objects. The purpose of this was to determine if subjects preferences conformed to the AH and to the normal form strategy. Clearly, there are more grammatical roles than just subject and object. Thus the full range of the hierarchy has remained untested. Similarly, the violation of a processing strategy need not be binary. That is, relativizing an indirect object or an object of a passive may present a more severe violation of normal form.

As well, the notion of animacy, an important category associated with empathy (Kuno 1972, 1976), is more differentiated than was presented in this work. As pointed out by Kuno, there are degrees of humanness. That is, human entities may be a member of the discourse or a third person both participants are familiar with. As well, it is possible for entities to be non-human and animate. Further, inanimate entities can be subdivided into those which are concrete, such as rocks and books, to less tangible entities such as periods of time or concepts.

The semantic properties examined in this thesis and their effects on relative clause heads have for the most part been limited to study on either English or Japanese. The AH, admittedly, has been applied to a wide range of languages, and Fox (1987) has examined subject primacy in Tagalog and Batak and found that relativization of objects occurs almost as frequently as do S-relatives. Thus, there is still a need to determine if the effect of certain discourse factors is universal. This is particularly important for those theoretical frameworks which are based on cognition. The reason for this, is that certain cognitive properties are, for the most part, the same across cultures.

4. Conclusion

The main hypothesis based on previous research and the actual results obtained in this study are summarized in Table 4. The results show that, overall, speakers tend to relativize subjects rather than object. For sentences presented in isolation, speakers prefer relative clause heads which are definite. However, when presented with sentences embedded in a written context, speakers prefer that relativized subjects be human and secondly, represent given information. When speakers relativize objects, on the other hand, they tend to represent new information. The effect of animacy on speakers preference to relativize objects, is limited, if not non-existent. The results do not fully support any single prediction made on the basis of previous research. Instead, this thesis has demonstrated that a relation between semantic properties, in this case animacy, and cognitive

processing strategies such as normal form and given/new exists.

Table 4. Summary of predictions made on the basis of previous analyses

Research	Synopsis of the predictions
Fox (1987)	ONI, ONH > SNI, SNH > OGI, OGH , SGI, SGH
Keenan & Comrie (1977)	SGI, SGH, SNI, SNH > OGI, OGH, ONI, OGH
Kuno (1976)	SGH > OGH > SNH > ONH > SGI > OGI > SNI > ONI
Prideaux & Baker (1986)	SGH, SGI > ONH, ONI > SNH, SNI > OGH, OGI
Present Results:	
Experiment 1	SGH, SGI > OGH, OGI > SNI > SNH, ONH, ONI
Experiment 2	SGI, SGH > SNH, SNI : OGI, OGH > ONH, ONI
Experiment 3	SGH, SNH > ONH, ONI > SGI >OGH, OGI

There is still a need to test both the reliability and validity of the conclusions made in this analysis. Still to be determined is the relation between the accessibility hierarchy and the normal form processing strategy and between the given/new distinction and the definite/indefinite articles. Further, there is still a need to test the universality of the results and conclusions stated in this thesis. What is required, then, is cross-linguistic studies which involve a wider range of methodologies employed in this study.

Inspite of its short comings, the analysis given in this work demonstrates that the various levels of syntactic representation are not necessarily autonomous. Rather, the principles involved in organizing discourse are syntactic, semantic, and pragmatic in nature. If they are to undertake a linguistic analysis concerning any facet of a structure researchers must recognize the possible influence of other levels of linguisitcs and either control for their influence or explore their relation to that aspect of the structure which is their primary concern.

References

Anderson, S. (1976). On the notion of subject in ergative languages. In C. Li (Ed.), *Subject and Topic* (pp. 1-24). New York: Academic Press.

Ard, J. and Gass, S. (1981). Predicting the distribution of relative clause types in discourse. *General Linguistics*, 21, 1-10.

Beaman, K. (1987). Coordination and subordination revisitied: Syntactic complexity in spoken and written narrative discourse. In D. Tannen (Ed.), *Coherence in Spoken and Written Discourse* (pp.45-80). Norwood, N.J.: Ablex.

Cattell, R. (1979). On extractability from quasi-NPs. *Linguistic Inquiry*, 10, 168-172.

Chafe, W. (1976). Givenness, contrastiveness, definiteness, subjects, topics, and point of view. In C. Li (Ed.), *Subject and Topic* (pp. 25-56). New York: Academic Press.

Chafe, W. (1982). Intergration and involvement in speaking, writing, and oralliterature. In D. Tannen (Ed.), *Spoken and Written Language: Exploring Orality and Literacy* (pp. 35-53). Norwood, N.J.: Ablex.

Chafe, W. (1987). Cognitive constraints on information flow. In R.S. Tomlin (Ed.), *Coherence and Grounding in Discourse* (pp. 21-51). Philadelphia: John Benjamins.

Chomsky, N. (1965) *Aspects of the Theory of Syntax*. Cambridge, Mass: MIT Press.

Chomsky, N. (1981). *Lectures on Government and Binding*. Dorcrecht: Foris.

Collins, A. and Quillian, M. (1969) Retrieval time from semantic memory. *Journal of Verbal Learning and Verbal Behaviour*, 8, 240-247.

Currah, S. (1988). The pragmatic function of *wa* in Japanese. Unpublished M.Sc. thesis, University of Alberta.

Deane, P. (1991). Limits to attention: A cognitive theory of island phenomena. *Cognitive Linguistics*, 2 (1), 1-63.

Dixon R. (1979). Ergativity. *Language*, 55, 59-138.

Du Bois, J. (1987). The discourse basis of ergativity. *Language*, 63. 805-855.

Ferguson, G. & Takane, Y. (1989). *Statistical Analysis in Psychology and Education* (6th ed.) New York: McGraw-Hill Book Company.

Fox, B. (1987). The noun phrase accessibility hierarchy reinterpreted: Subject primacy or the absolutive hypothesis? *Language*, 63, 856-870.

Givón, T. (1976). Topic, pronoun and grammatical agreement. In Li, C. (Ed.), *Subject and Topic*, (pp. 149-158). New York: Academic Press.

Givón, T. (1984). *Syntax, Vol I.* Amsterdam: John Benjamins.

Grosu, A. (1981). *Approaches to Island Phenomena.* Amsterdam: North-Holland Publishing Company.

Hislop, L. (1991). English relative clauses and the NP accessibility hierarchy. *The SECOL Review*, 15, 169 - 182.

Itagaki, N. (1982). Contextual determinants of linguistic expressions. Unpublished M.Sc. thesis, University of Alberta.

Keenan, E. (1975). Variation in universal grammar. In R. Fasold & R. Shuy (Eds.), *Analyzing Variation in Language* (pp. 136-148). Washington: Georgetown University Press.

Keenan, E. (1976). Towards a universal definition of "subject". In Li, C. (Ed.), *Subject and Topic*, (pp. 303-333). New York: Academic.

Keenan, E. & Comrie, B. (1977). Noun phrase accessibility and universal grammar. *Linguistic Inquiry*, 8, 63 - 99.

Keenan, E. & Comrie, B. (1979). Noun phrase accessibility revisited. *Language*, 55 (3), 649-664.

Keenan, E. & Hawkins, S. (1987). The psychological validity of the Accessibility Hierarchy. In E, Keenan (Ed.), *Universal Grammar: 15 Essays* (pp. 60-85). London: Croom Helm

Kuno, S. (1972). Functional sentence perspective: A case study from Japanese and English. *Linguistic Inquiry*, 3, 269-320.

Kuno, S (1976). Subject, theme and speaker's empathy - a reexamination of relativization phenomena. In C. Li (Ed.), *Subject and Topic* (pp. 419-444). New York: Academic.

Kuno, S. (1987). *Functional Syntax*. Cambridge, Mass: Harvard University Press.

Lehman, C. (1986). On the typology of relative clauses. *Linguistics*, 24, 663-680.

Löbner, S. (1985). Definites. *Journal of Semantics*, 4, 279-326.

Maxwell, D. (1979). Strategies of relativization and NP accessibility. *Langauge*, 55 (2), 352 - 371.

Perlmutter, D. (1982). Syntactic representation, syntactic levels, and the notion of subject. In P. Jacobson & G. Pullum (Eds), *The Nature of Syntactic Representation* (pp. 283-340). Dordrecht: D. Reidel.

Prideaux, G. & Baker, W. (1986). *Strategies and Structures. The Processing of Relative Clauses.* Amsterdam: John Benjamins.

Prideaux, G. & Hogan, J.T. (1993). Markedness as a discourse management device: The role of alternative adverbial clause orders. *Word*, 44, 397-411.

Prince, E. (1979). Towards a taxonomy of given-new information. In P. Cole (Ed), *Radical Pragmatics* (pp. 223-255). New York Academic.

Ross, J. (1967). Constraints on Variables in Syntax. Unpublished Ph.D. Dissertation, MIT.

Rosenbaum, H. 1978. Relative clause structure in informal conversation. Paper delivered at the LSA Meeting December 1978.

Winer, B. (1971). *Statistical Principles in Experimental Design* (2nd ed.). New York: McGraw-Hill Book Company.

Appendix A

1. Tables of results for experiment 1

Table 5. Analysis of data for experiment 1 using a 2-Way ANOVA with Repeated Measures

Source	Sum of Squares	Degrees of Freedom	Mean Square	F-Score	Probability
Mean	1762.503	1	1762.503	749.42	0.0000
Subject	12.159	3	4.0531	7.24	0.0003
Object	7.884	3	2.628	4.45	0.0071
Sub. X Obj.	5.103	9	0.567	1.40	0.1900
Sub X Part.	31.903	57	0.5597		
Obj. X Part.	33.678	57	0.5908		
Sub. X Obj. X Part.	69.084	171	0.404		

Table 6. Tukey HSD test of subject means in experiment 1
q(57,4,.01)=4.59 and q(57,4,.05)=3.74

		SGH	SGI	SNH	SNI
		2.41	2.55	2.02	2.40
SGH	2.41		1.64	4.64**	0.16
SGI	2.55			6.28**	1.79
SNH	2.03				4.48*
SNI	2.40				

For this, and all subsequent tables, * = p<.05 and ** = p<.01.

Table 7. Tukey HSD test of object means in experiment 1
q(57,4,.01)=4.59 and q(57,4,.05)=3.74.

		OGH	OGI	ONH	ONI
		2.31	2.13	2.56	2.39
OGH	2.31		2.19	2.87	0.90
OGI	2.12			5.06**	3.08
ONI	2.56				1.99
ONH	2.39				

Table 8. Tukey HSD test for interaction effects of experiment 1
q(189,8,.01)=5.12 and q(189,8,.05)=4.36.

		SGH with OGI	ONH	ONI	SGI with OGH	OGI	ONH	ONI	SNH with OGH	OGI	ONH	ONI	SNI with OGH	OGI	ONH	ONI
		2.35	2.5	2.5	2.65	2.45	2.7	2.4	1.95	1.75	2.4	2	2.35	1.95	2.65	2.65
SGH with OGH	2.3	0.35	1.41	1.41	2.46	1.06	2.81	0.70	2.46	3.87	0.70	2.11	0.35	2.46	2.46	.46
OGI	2.35		1.06	1.06	2.11	0.70	2.46	0.35	2.81	4.22	0.35	2.46	0	2.81	2.11	2.11
ONH	2.5			0	1.06	0.35	1.41	0.70	3.87	5.28**	0.70	3.52	1.06	3.87	1.06	1.06
ONI	2.5				1.06	0.35	1.41	0.70	3.87	5.28**	0.70	3.52	1.06	3.87	1.06	1.06
SGI with OGH	2.65					1.41	0.35	1.76	4.93*	6.33**	1.76	4.57*	2.11	4.93*	0	0
OGI	2.45						1.76	0.35	3.52	4.93*	0.35	3.17	0.70	3.52	1.41	1.41
ONH	2.7							2.11	5.28**	6.68**	2.11	4.93*	2.46	5.28**	0.35	0.35
ONI	2.4								3.17	4.57*	0	2.81	0.35	3.17	1.76	1.76
SNH with OGH	1.95									1.41	3.17	0.35	2.81	0	4.93*	4.93*
OGI	1.75										4.57*	1.76	4.22	1.41	6.33**	6.33**
ONH	2.4											2.81	0.35	3.17	1.76	1.76
ONI	2												2.46	0.35	4.57*	4.57*
SNI with OGH	2.35													2.81	2.11	2.11
OGI	1.95														4.93*	4.93*
ONH	2.65														0	0
ONI	2.65															0

2. Tables of results for experiment 2

Table 9. Results of Friedman Two-Way Analysis performed on 'subject' data of experiment 2

Sentence Type	Mean Score	Standard Deviation	Rank Sum	Friedman Statistic	DF	Probability
1. SNH w/ OGI	18.15	2.390	126.5			
2. SGI w/ OGI	4.75	1.209	32.0			
3. SNI w/ ONI	18.35	3.297	127.5			
4. SGH w/ OGI	5.35	1.631	29.0			
5. SGH w/ ONI	13.80	2.802	93.5			
6. SNH w/ ONI	20.90	2.426	144.5			
7. SGI w/ ONI	13.30	2.736	84.0			
8. SNI w/ OGI	13.40	3.068	83.0			
				107.43	7	0.0000

Table 10. Results of Friedman Two-Way Analysis performed on 'object' data of experiment 2

Sentence Type	Mean Score	Standard Deviation	Rank Sum	Friedman Statistic	DF	Probabiliy
1. OGH w/ SGH	8.69	4.532	53.5			
2. ONH w/ SNH	17.75	4.399	122.0			
3. OGI w/ SGH	6.80	3.982	40.0			
4. ONI w/ SNI	17.75	4.435	119.5			
5. OGI w/ SNI	13.40	4.272	90.5			
6. OGH w/ SNH	14.75	3.177	100.0			
7. ONH w/ SGH	15.70	2.515	107.0			
8. ONI w/ SGH	13.80	4.175	87.5			
				51.02	7	0.0000

3. Tables of results for experiment 3

Table 11. Analysis of data for experiment 3 using a 2-Way ANOVA with Repeated Measures

Source	Sum of Squares	Degrees of Freedom	Mean Square	F-Score	Probability
Mean	875.071	1	875.071	1485.99	0.0000
Subject	5.895	3	1.965	3.55	0.0194
Object	55.622	3	18.54	30.99	0.0000
Sub. X Obj.	41.548	9	4.617	8.73	0.0000
Sub. X Part.	34.918	63	0.5542		
Obj. X Part.	37.691	63	0.5983		
Sub. X Obj. X Part.	99.889	189	0.5285		

Table 12. Tukey HSD test of subject means in experiment 3

q(63,4,.01)=4.59 and q(63,4,.05)=3.74.

		SGH	SGI	SNH	SNI
		2.41	2.55	2.02	2.40
SGH	1.77		2.00	4.02*	3.87*
SGI	1.61			2.02	1.86
SNH	1.45				0.15
SNI	1.47				

Table 13. Tukey HSD test of object means in experiment 3

q(63,4,.01)=4.59 and q(63,4,.05)=3.74.

		OGH	OGI	ONH	ONI
		1.73	2.52	1.18	1.24
OGH	1.73		9.61**	6.61**	5.92**
OGI	2.52			16.21**	11.16**
ONH	1.18				0.69
ONI	1.24				

Table 14. Tukey HSD test for interaction effects of experiment 3

q(189,8,.01)=5.12 and q(189,8,.05)=4.36.

		SGH with OGI	ONH	ONI	SGI with OGH	OGI	ONH	ONI	SNH with OGH	OGI	ONH	ONI	SNI with OGH	OGI	ONH	ONI
		2.36	1.27	1.18	1.5	2.5	1.14	1.32	1.82	2.32	1.14	0.55	1.32	1.46	1.18	1.91
SGH with OGH	2.27	0.58	6.45**	7.04**	4.99*	1.46	7.33**	6.16**	2.94	0.29	7.32**	11.15**	6.16**	5.28**	7.04**	2.35
OGI	2.36		7.03**	7.62**	5.57**	0.88	7.92**	6.74**	3.52	0.29	7.91**	11.73**	6.74**	5.86**	7.62**	2.93
ONH	1.27			0.59	1.47	7.92**	0.89	0.29	3.52	6.74**	0.88	4.7	0.29	1.17	0.59	4.10
ONI	1.18				2.05	8.50**	0.3	0.88	4.1	7.33**	0.29	4.11	0.88	1.76	0	4.71*
SGI with OGH	1.5					6.45**	2.35	1.17	2.05	5.28**	2.34	6.16**	1.17	0.29	2.05	2.64
OGI	2.5						8.80**	7.63**	8.50**	1.17	8.79**	12.61**	7.63**	6.74**	8.50**	3.81
ONH	1.14							1.17	4.40*	7.63**	0.01	3.81	1.17	2.06	0.3	4.99*
ONI	1.32								3.23	6.45**	1.17	4.99*	0	0.88	0.88	3.81
SNH with OGH	1.82									3.23	4.39	8.21**	3.23	2.34	4.10	0.59
OGI	2.32										7.62**	11.44**	6.45**	5.57**	7.33**	2.64
ONH	1.14											3.82	1.17	2.05	0.29	4.98*
ONI	0.55												4.99*	5.87**	4.11	8.80**
SNI with OGH	1.32													0.88	0.88	3.81
OGI	1.46														1.76	2.93
ONH	1.18															4.69*

Appendix B

1. Instructions and stimuli for experiment 1

Certain information is necessary to ensure an accurate analysis/ interpretation of your data. Please answer the following questions.

Is English your maternal language? Yes No

What language do you usually speak? _____

Are you Male or Female? M F

How old are you? _____

How many years of post-secondary education do you have? 1 2 3 4+

I understand that the information given above will remain confidential and that only the data provided by me will be reported in any publication.

_____ _____

DATE SIGNATURE

This experiment consists of three sections each containing two tasks. In the first task you will be presented with a sentence followed by two semantic "paraphrases". Indicate which "paraphrase" you feel is best by circling its corresponding letter. The second task consists of reading two seperate but related passages presented at the end of section I and section II and answering the questions related to them which are found at the end of section III. **Important: Once you have completed a section, do not refer back to it.**

Section I

Instructions: For each sentence below, there are two 'paraphrases'. Please read the sentence carefully and then indicate which paraphrase you feel is best by circling its corresponding letter.

1. The actor read a play.
   a) This is a play that the actor read.
   b) This is the actor that read a play.

2. The doctor examined the patient.
   a) This is the doctor that examined the patient.
   b) This is the patient that the doctor examined.

3. A teenager drove the car.
   a) This is a teenager that drove the car.
   b) This is the car that a teenager drove.

4. A killer found the gun.
   a) This is a killer that the gun was found by.
   b) This is the gun that was found by the killer.

5. The passenger stopped the train.
   a) This is the passenger that stopped the train.
   b) This is the train that the passenger stopped.

6. A plant cheered up a patient.
   a) This is a patient that a plant cheered up.
   b) This is a plant that cheered up a patient.

7. The baseball broke a window.
   a) This is a window that the baseball broke.
   b) This is the baseball that broke a window.

8. The rock crushed the man.
   a) This is the man that the rock crushed.
   b) This is the rock that crushed the man.

9. A fire destroyed the picture.
   a) Here is a fire that the picture was destroyed by.
   b) Here is the picture that was destroyed by a fire.

10. A thorn scratched the boy.
    a) This is the boy that a thorn scratched.
    b) This is a thorn that scratched the boy.

11. The man rented the apartment.
    a) This is the apartment that was rented by the man.
    b) This is the man that the apartment was rented by.

12. The lady met a little boy.
    a) This is the lady that met a little boy.
    b) This is a little boy that the lady met.

13. A waiter watched a T.V. show.
    a) This is a T.V. show that a waiter watched.
    b) This is a waiter that watched a T.V. show.

14. The heat dried out the fruit.
    a) This is the fruit that was dried out by the heat.
    b) This is the heat that the fruit was dried out by.

15. A lamp lit up a room.
    a) This is a lamp that lit up a room.
    b) This is a room that a lamp lit up.

16. A teacher caught a student cheating.
    a) This is a student that a teacher caught cheating.
    b) This is a teacher that caught a student cheating.

17. A policeman caught the criminal yesterday.
    a) This is a policeman that caught the criminal yesterday.
    b) This is the criminal that a policeman caught yesterday.

18. The calculator solved the problem quickly.
    a) This is the problem that the calculator solved quickly.
    b) This is the calculator that solved the problem quickly.

19. A shopping cart dented the car.
    a) This is a shopping cart that dented the car.
    b) This is the car that a shopping cart dented.

20. The electric fan cooled a man.
    a) This is the electric fan that cooled a man.
    b) This is a man that the electric fan cooled.

Please read the following passage carefully. At the end of section III, you will be asked several questions related to it.

Jason edged his bare toes into the sunlight that fell across the livingroom floor. It was already after nine, but he still felt like yawning. His mother used her cane to push her chair around so she could face him. "Your father's gone to old Mrs Birchem's. She baked a cake for him. He's going to try and fix her dishwasher."

Jason made little more than a grunt. It was cold in the house and he wanted to go back to bed.

"I hope its a chocolate cake. I'm sure your father said she was making a chocolate cake. Put some more ice in here." She held out her glass for Jason. "Three ice cubes. If there is only two, they melt too fast. Your father only put in two." She pushed her chair around again so she could see both the television and the driveway.

Jason took the glass and went into the kitchen. It wasn't any warmer than the rest of the house.

"I hope she doesn't put too much frosting on it. It'll be too sweet."

Jason opened the freezer. The ice cubes were beside a can of frozen orange juice. He set the can on the counter and popped three ice cubes out of the tray and put them in his mother's glass. He looked at the phone hanging on the kitchen wall and hoped it would ring soon.

Jason sat back down on the couch. His mother stuck her finger in the drink and stirred it.

"Did you see your friend Denise last night?"

"No, she didn't come." Jason picked at the edge of the coffee table. "She'll probably phone." A sliver of wood came off and stuck Jason under his fingernail.

"Do you think you'll be going out this afternoon."

"I'm not sure. It depends on what she has to do today." Jason picked out the sliver. His fingers touched the stuble on his face.

"What's keeping your father. I thought I could have that chocolate cake for my snack." She stirred the ice in her drink again. "If he doesn't get here soon, I'll have to have toast."

Jason stood up, stretching a little and walked to the stairs. "I'm going to go and have a shower."

Take those old newspapers down stairs with you. I've told your father we should move to a bungalow. The Freizen's bought a very nice one. If we had a bungalow, then I could do the laundry. I just can't get up and down those stairs."

Jason looked at his empty wrist. His watch was downstairs.

"Your father, you know, does practically all the housework. He says he doesn't mind, but sometimes I think he does. I think he likes to go and help out Pearl. He doesn't have many friends. Pearl's husband George is nice, but he's old. He can't really do anything with your father. He should be here by now."

Section II

Instructions: For each sentence below, there are two 'paraphrases'. Please read the sentence carefully and then indicate which paraphrase you feel is best by circling its corresponding letter.

1. The man baked a cake.
   a) This is a cake that a man baked.
   b) This is the man that baked a cake.

2. The lieutenant inspected the soldier.
   a) This is the lieutenant that inspected the soldier.
   b) This is the soldier that the lieutenant inspected.

3. A student wrote the essay.
   a) This is a student that wrote the essay.
   b) This is the essay that a student wrote.

4. The snow queen kidnapped the boy.
   a) This is the boy that was kidnapped by the snow queen.
   b) This is the snow queen that the boy was kidnapped by.

5. The musician played the new piano.
   a) This is the musician that played the new piano.
   b) This is the new piano that the musician played.

6. An experimental operation saved a baby.
   a) This is a baby that an experimental operation saved.
   b) This is an experimental operation that saved a baby.

7. The vase scratched an end table.
   a) This is an end table that the vase scratched.
   b) This is the vase that scratched an end table.

8. The razor blade cut the gang member.
   a) This is the gang member that the razor blade cut.
   b) This is the razor blade that cut the gang member.

9. The chicken bone choked the doctor.
   a) This is the doctor that was choked by the chicken bone.
   b) This is the chicken bone that the doctor was choked by.

10. A cigarette burned the smoker.
    a) This is the smoker that a cigarette burned.
    b) This is a cigarette that burned the smoker.

11. A neighbour made the weather-vane.
    a) This is a neighbour that the weather-vane was made by.
    b) This is the weather-vane that was made by a neighbour.

12. The reporter interviewed a policeman.
    a) This is the reporter that interviewed a policeman.
    b) This is a policeman that the reporter interviewed.

13. A maid cleaned a teapot.
    a) This is a teapot that a maid cleaned.
    b) This is a maid that cleaned a teapot.

14. A brace propped up a wall.
    a) This is a brace that a wall was propped up by.
    b) This is a wall that was propped up by a brace

15. A motor home towed a car.
    a) This is a motor home that towed a car.
    b) This is a car that a motor home towed.

16. A director fired an employee.
    a) This is an employee that a director fired.
    b) This is a director that fired an employee.

17. A pilot wanted to tip the waitress.
    a) This is a pilot that wanted to tip the waitress.
    b) This is the waitress that a pilot wanted to tip.

18. The computer traced the call.
    a) This is the call that the computer traced.
    b) This is the computer that traced the call.

19. A rug covered the floor.
    a) This is a rug that covered the floor.
    b) This is the floor that a rug covered.

20. The dye stained a painter.
    a) This is the dye that stained a painter.
    b) This is a painter that the dye stained.

Please read the following passage carefully. At the end of section III, you will be asked several questions related to it.

The phone rang as she was talking. Jason walked swiftly into the kitchen. He answered it before his mother could pick up the cordless phone lying beside her. When he spoke, he kept his voice low and husky. He didn't stay on the phone long.

"That was Denise. I'm going to meet her for lunch."

"Before you go, would you make me some toast. Two slices. And make sure you butter the outside first." Jason opened the cupboard above the toaster. "Oh, never mind. I see your father coming up the road." Jason put the bread back.

"Well, I'm going to go get ready." Jason started down the stairs.

"Ok. But don't be too long. Your father is making fried chicken for dinner. I know he wants you to be here."

"I don't know. We might stay downtown and go to a movie tonight."

"Well, if your not going to be here let your father know."

"I'll phone and let you know what I'm doing." Jason shut the downstairs bathroom door. He looked in the mirror and decided he didn't need to shave. He showered, brushed his teeth and got dressed again. He opened the bathroom door quietly and walked past the stairs. At the back door, he put on his shoes.

As he was typing them up, his father came in. "Where's your mother?"

"Upstairs." Jason zipped his jacket up.

"Where are you off to?"

"I'm going downtown with Denise."

"Well phone and let me know if your going to be here for dinner."

Jason said he would and left the house. He walked around to the front of the house and unlocked his car.

Jason's father went upstairs. In his hand was a small plate.

"Did Pearl give you the cake."

"Yeah, here." He set the plate down beside her.

"What's this."

"It's the cake Pearl sent over for you. I have to go outside and pull up those raspberry's. I'll be out back if you need me." Jason's father turned away and went down stairs.

Jason's mother looked at the plate. On it was a small piece of dried up pound cake. She looked out the window.

Just before he pulled away from the curb Jason looked up to see if his mother was looking. He waved to her but she didn't see him.

Upstairs, Jason's mother was watching television and muttering to herself. "He said he was bringing me a chocolate cake. He should know I don't like pound cake." Beside her, was a small plate that was empty except for a few small crumbs.

Section III

Instructions: For each sentence below, there are two 'paraphrases'. Please read the sentence carefully and then indicate which paraphrase you feel is best by circling its corresponding letter.

1. The student bought a piano.
   a) This is a piano that the student bought.
   b) This is the student that bought a piano.

2. The athlete dated the model.
   a) This is the athlete that dated the model.
   b) This is the model that the athlete dated.

3. An artist painted the picture.
   a) This is an artist that painted the picture.
   b) This is the picture that an artist painted.

4. The pianist performed a concerto.
   a) This is a concerto that was performed by the pianist.
   b) This is the pianist that the concerto was performed by.

5. The man bought the stereo.
   a) This is the man that bought the stereo.
   b) This is the stereo that the man bought.

6. A painting inspired a writer.
   a) This is a writer that a painting inspired.
   b) This is a painting that inspired a writer.

7. The cigarette burned a couch.
   a) This is a couch that the cigarette burned.
   b) This is the cigarette that burned a couch.

8. The detour angered the truckdriver.
   a) This is the truckdriver that the detour angered.
   b) This is the detour that angered the truckdriver.

9. The pothole dented a tire rim.
   a) This is a tire rim that was dented by the pothole.
   b) This is the pothole that a tire rim was dented by.

10. A training film shocked the cadet.
    a) This is the cadet that a training film shocked.
    b) This is a training film that shocked the cadet.

11. A firestorm left a man homeless.
    a) This is a firestorm that a man was left homeless by.
    b) This is a man that was left homeless by a firestorm.

12. The doctor cured a model.
    a) This is the doctor that cured a model.
    b) This is a model that the doctor cured.

13. A letter-carrier broke a gate.
    a) This is a gate that a letter-carrier broke.
    b) This is a letter-carrier that broke a gate.

14. The ferris-wheel made a boy sick.
    a) This is a boy that was made sick by the ferris-wheel.
    b) This is the ferris-wheel that a boy was made sick by.

15. A branch bumped against a stop sign.
    a) This is a branch that bumped against a stop sign.
    b) This is a stop sign that a branch bumped against.

16. A mother spanked a child.
    a) This is a child that a mother spanked.
    b) This is a mother that spanked a child.

17. A photographer punched the reporter.
    a) This is a photographer that punched the reporter.
    b) This is the reporter that a photographer punched.

18. The truck cracked the road.
    a) This is the road that the truck cracked.
    b) This is the truck that cracked the road.

19. A bus hit the car.
    a) This is a bus that hit the car.
    b) This is the car that a bus hit.

20. The tree shaded a sunbather.
    a) This is the tree that shaded a sunbather.
    b) This is a sunbather that the tree shaded.

Indicate which sentence of the following pairs was presented in the passages. Indicate your choice by circling the sentence's corresponding number. Do not refer back to the passages.

1 a) She poked at the icecube that was melting in her glass..
b) She poked at an icecube that was melting in her glass.

2 a) Jason moved the toaster that was in front of the peanut-butter.
b) Jason moved the peanut butter that was in front of the toaster.

3 a) Jason looked in the mirror that had fogged over.
b) Jason looked in the mirror that his shower had fogged up.

4 a) The plate that was beside her was empty except for a few crumbs.
b) Beside her was a plate that was empty except for a few crumbs.

5. a) Even downstairs, he could hear the TV she always kept on.
b) Even downstairs, he could hear the TV that was always kept on.

6. a) She turned her chair which faced the driveway.
b) She turned her chair which she had faced towards the driveway.

You have now completed the experiment. Thank you for your participation.
Please return this booklet to the experimenter or to:

Darrell Williams,
Department of Linguistics
Rm 4-32 Assiniboia Hall.

2. Instructions and stimuli for experiment 2

Certain information is necessary to ensure an accurate analysis/ interpretation of your data. Please answer the following questions.

Is English your maternal language? Yes No

What language do you usually speak? _____

Are you Male or Female? M F

How old are you? _____

How many years of post-secondary education do you have? 1 2 3 4+

I understand that the information given above will remain confidential and that only the data provided by me will be reported in any publication.

_____ _____

DATE SIGNATURE

This experiment consists of 6 sets of eight sentences. For each set, read the eight sentences carefully. Then, rank the sentences from 1 to 8. The sentence which you feel is best should be given a rank of 1, whereas the sentence that you feel is the worst, should be given a rank of 8. The remaining sentences should be ranked accordingly. Each "rank" is to be used only once.

Instructions: Read the following eight sentences carefully. After you have read them select the sentence you feel is the worst and rank it 8. Select the sentence you feel is best and rank it as 1. Rank the remaining sentences accordingly. Each "rank" can only be used once.

1 2 3 4 5 6 7 8
Best Worst

Test Set 1.

a. ____ Greg didn't recognize a boy that delivered the paper.

b. ____ Greg forgot to read the book that contained the article.

c. ____ Martha forgot to read a book that contained an article.

d. ____ Greg didn't recognize the boy the delivered the paper.

e. ____ Martha didn't recognize the boy that delivered the paper.

f. ____ Martha didn't recognize a boy that delivered a paper.

g. ____ Martha forgot to read the book that contained an article.

h. ____ Greg forgot to read a book that contained the article.

Test Set 2.

a. ____ Tim fired the nurse that the patient didn't like.

b. ____ Leona fired a nurse that a patient didn't like.

c. ____ Tim picked up the penny that the man dropped..

d. ____ Leona picked a penny that a man dropped.

e. ____ Leona picked up the penny that a man dropped.

f. ____ Leona finred the nurse that a patient didn't like.

g. ____ Tim fired a nurse that the patient didn't like.

h. ____ Tim picked up a penny that the man dropped.

Instructions: Read the following four sentences carefully. After you have read them select the sentence you feel is the worst and rank it 4. Select the sentence you feel is best and rank it as 1. Rank the remaining sentences accordingly. Each "rank" can only be used once.

1 2 3 4 5 6 7 8
Best Worst

Test Set 4.

a. ____ Alice watched a plumber that fixed the drain.

b. ____ Alice replaced the switch that controlled the livingroom light.

c. ____ Mark replaced a switch that controlled a livingroom light.

d. ____ Alic watched the plumber that fixed the drain.

e. ____ Mark watched the plumber that fixed a drain.

f. ____ Mark watched a plumber that fixed a drain.

g. ____ Mark replaced the switch that controlled a livingroom lamp.

h. ____ Alice replaced a switch that controlled the livingroom lamp.

Test Set 4.

a. ____ Millie helped the man that the mugger had attacked.

b. ____ Gary helped a man that a mugger had attacked.

c. ____ Millie wanted to wear athe shirt that the maid had washed.

d. ____ Gary wanted to wear a shirt that a maid had washed.

e. ____ Gary wanted to wear the shirt that a maid had washed.

f. ____ Gary helped the man that a mugger had attacked.

g. ____ Millie helped a man that the mugger had attacked.

h. ____ Millie wanted to wear a shirt that the maid had washed.

Instructions: Read the following four sentences carefully. After you have read them select the sentence you feel is the worst and rank it 4. Select the sentence you feel is best and rank it as 1. Rank the remaining sentences accordingly. Each "rank" can only be used once.

1	2	3	4	5	6	7	8
Best							Worst

Test Set 5.

a. ____ Steven smiled at a teller that cashed the cheque.

b. ____ Steven vacuumed the rug that covered the floor.

c. ____ Trisha vacuumed a rug that covered a floor

d. ____ Steven smiled at the teller that cashed the cheque.

e. ____ Trisha smiled at the teller that cashed a cheque.

f. ____ Trisha smiled at a teller that cashed a cheque.

g. ____ Trisha vacuumed the rug that covered a floor.

h. ____ Steven vacuumed a rug that covered the floor.

Test Set 6.

a. ____ Tina interviewed the applicant that the manager recommended.

b. ____ Larry interviewed an applicant that a manager recommended.

c. ____ Tina bought the toy that the salesclerk recommended.

d. ____ Larry bought a toy that a salesclerk recommended.

e. ____ Larry bought the toy that a salesclerk recommended.

f. ____ Larry interviewed the applicant that a manager recommended.

g. ____ Tina interviewed an applicant that the manager recommended.

h. ____ Tina bought a toy that the salesclerk recommended.

3. Instructions and stimuli for experiment 3

Certain information is necessary to ensure an accurate analysis/ interpretation of your data. Please answer the following questions.

Is English your maternal language? Yes No

What language do you usually speak? _____

Are you Male or Female? M F

How old are you? _____

How many years of post-secondary education do you have? 1 2 3 4+

I understand that the information given above will remain confidential and that only the data provided by me will be reported in any publication.

_____ _____

DATE SIGNATURE

The purpose of this experiment is to investigate the manner in which relative clauses are used during discourse. In this experiment, you will be presented with a series of small "vignettes". Your task is to read each vignette and then determine which of the two sentences given in bold is the most preferable. Indicate your choice by underlining the sentence you feel is better. **IMPORTANT: Once you have finished a section, please do not refer back to it.**

Section I

Read each paragraph carefully, and evaluate the sentences presented in bold. Indicate which sentence you prefer by underlining it.

1. As a casting assistant, Mary saw a lot of people every day. For her, though, one audition was just as forgettable as any other. Nothing about them ever really stood out. Except for today. **She was awed by a play that the actor was reading to her. / She was awed by the actor that was reading a play to her.**

2. Natalie was tired of listening to the man and woman upstairs argue. They had been fighting for almost an hour and it was now two-thirty in the morning. Finally she couldn't stand it anymore. **She opened her bedroom window and called up to the man that was yelling at the woman. / She opened her window and called up to the woman that the man was yelling at.** Unfortunately, they were yelling so loud neither of them could hear her.

3. As Gary stood waiting for the bus, a jogger ran out into an intersection causing a small green car to drive onto the sidewalk. **From where he stood, Gary could see a teenager that had been driving the car. / From where he stood, Gary could see the car that a teenager had been driving.** Since there were other people around, Gary didn't think he was needed as a witness so he got on the bus when it came instead of waiting around.

4. Most people wouldn't have thought that this pudgy nondescript young man was the hero type. But when the bus driver suddenly fainted, he was the first to leap up and stop the bus before it smashed into the office-building. After the bus had stopped, the little man was numb with adrenaline. Out of nowhere, it seemed to him, came a hundred people. **Each one staring at the man that had stopped the bus. / Each one staring at the bus that the man had stopped.** Very carefully, the man got of the bus and walked away, not answering anyone's questions.

5. Sherry was retired and enjoyed putting in a few hours every day at the hospital. She delivered a lot of packages to a lot of rooms, but her favorite was room 1102. **She had never seen a patient that a plant had cheered up so much. / She had never seen a plant that had cheered up a patient so much.** Its always the little things that make people happy, she thought.

6. Martha watched the kids throw a baseball back and forth as she shelled the fresh mussels. It was a nice day out and she was glad they were getting some fresh air. As she reached into a pail for another mussel, she heard a large crash. **Across the street, she saw a window that the baseball had broken. / Across the street, she saw the baseball that had broken a window.** The kids looked up to see if Martha was angry and saw that she was laughing.

7. Gail hung from the cliff face and called down to her companion. She had felt the boulder brush by her. Looking down, she screamed as the boulder crushed her friend. **Years later, she would wake up screaming about the climber that the boulder crushed. / Years later, she would wake up screaming about the boulder that crushed the climber.**

8. Marty pushed the little boy and taunted him, daring him to fight back. Jeff looked on but did nothing. Finally the little boy pushed back but Marty just pushed him harder and knocked the boy off his feet. Both the boy and Marty screamed. **Jeff looked behind the bush and saw the boy that a fence post had impaled. / Jeff looked behind the bush and saw a fence-post that had impaled the boy.** Jeff had to turn away, not sure if he was going to cry or throw-up.

9. The thunder and lightening had sent most people inside. Only a frail old lady and her shopping cart were left out. As she pushed her cart into a side ally her heart froze. As hard as she could, she pushed her cart into an oncoming car making it swerve. **The car sped by the old lady that had just saved a little boy. / The car sped by a little boy that the old lady had just saved.** Shaking with fear, the little boy collapsed into the arms of the old woman.

10. "You should have seen this movie. The ending was awful. **The hero suddenly remembers a gun that a guest hid in the bookcase. / The hero suddenly remembers a guest that hid a gun in the bookcase.** He runs back into the house gets the gun and shoots the killer. Very predictable."

11. Bored and unable to sleep, Shelly got out of bed and went to the window. A faint breeze blew bits of paper down the street. **Across the street, Shelly could see a lamp that lit up a room. / Across the street Shelly could see a room that a lamp lit up.** The rest of the building was dark, its edges blending into the night. Behind her, a small clock ticked away, reminding her she had an early day tomorrow.

12. Unlike her colleagues, Macy hated her job. She hated everything about it. **She hated a student that a teacher caught cheating yesterday. / She hated a teacher that caught a student cheating yesterday.** She hated hearing parents complaints and she was tired of marking poorly written essays. All she wanted to do was stay in bed and wait for summer vacation.

13. Stan was always hustling for a story. He had been close to getting an interview with a serial killer that was on the loose. But that had fallen through since he had been arrested after someone had spotted him going into a bank. But luckily, Stan had gone to the precinct that day to get some background information on a story. **There, sitting on a bench, was a store clerk that had spotted the killer going into the bank. / There, sitting on a bench was the killer that a store clerk had spotted going into the bank.**

14. About twenty people stood in Eric's living room, all drinking, and most smoking. Although Eric was pretty easy going, he was getting fed up with Tyler. Twice Tyler had dropped his cigarette onto the couch and had been too drunk to notice. When he got everyone out, Eric was too tired to clean up and went straight to bed. Three hours latter, he thought he smelled smoke but thought he must be dreaming. **He had forgotten about the couch that the cigarettes had burned. / He had forgotten about the cigarettes that had burned the couch.**

15. Mark was to busy to worry about other people. He pushed his way through the line-ups and after he loaded his groceries, he scratched the car next to him. But Mark just got in his car and left. **After all, he told himself, they couldn't connect him to a shopping cart that dented the car. / After all, he told himself, they couldn't connect him to the car that a shopping cart had dented.**

16. There wasn't much room on the sun-tanning deck. Mostly there was a lot of junk on it like coolers, umbrellas, and even an electric fan. She picked her way carefully across the deck. **She just about stepped on the electric fan that was cooling a man / She just about stepped on a man that the electric fan was cooling.** Finally, she found a spot and spread her towel out.

Section II

Read each paragraph carefully, and evaluate the sentences presented in bold. Indicate which sentence you prefer by underlining it.

1. Sheila stared at the man working inside the store. She admired the quick confident movement of his hands and the patience he had for his tasks. **Cold and hungry, Sheila stared at a cake that the man was decorating. / Cold and hungry, Sheila stared at the man that was decorating a cake.** A light snow started, reminding her that she still had to find somewhere to sleep tonight. Sheila turned away from the shop and shuffled down the street.

2. At that moment, the lieutenant and the soldier hated each other. The lieutenant thought the soldier was stupid and sloppy. The soldier thought the lieutenant was pompous and overbearing. If each had their own way, the other would be kicked out of the army immediately. Both men were known for their tempers. **For the rest of the day, everyone avoided the lieutenant that had inspected the soldier. / For the rest of the day, everyone avoided the soldier that the lieutenant had inspected.**

3. Marge gently swayed on the porch swing. On her lap was an old picture album. She turned the pages carefully, slowly. Each page brought a smile to her face. Her fingers touched a small piece of paper long forgotten. The smile slipped from her face as she unfolded the little poem. **Tears came to her eyes as she remembered a young man that had written the poem. / Tears came to her eyes as she remembered the poem that a young man had written.**

4. George had spent a lot of his day drinking rum and cokes. He had come into this bar looking for some peace and quiet. But less than an hour after he sat down, the floor show started. It was a guy who told bad jokes and played a piano that was too loud. **But after eight drinks, he didn't even hear the obnoxious musician that played the loud piano. / But after eight drinks, he didn't even hear the loud piano that the obnoxious musician played.**

5. To say that Greg was a couch potato was an understatement. If the remote control wasn't right beside him, he would resign himself to watching what ever was playing on the current channel. **Right now, he was watching a story about a newborn baby that an experimental operation had saved. / Right now, he was watching a story about an experimental operation that had saved a newborn baby.** Like he cared.

6. Everything Sharon and Eddie owned was stacked on the lawn behind a large moving truck. This was to be their first house and they were both a little excited. Sharon started carrying some small boxes into the house while Eddie got ready to return the truck to the rental agency. Sharon was already inside the house when she heard the smashing sound. Quickly, she ran to the front door. **She stared in disbelief at an antique coffee table the the truck had rolled over. / She stared in disbelief at the truck that had rolled over an antique coffee table.**

7. Nobody expected the fight to get so ugly. The two gang members started off just punching each other, their friends cheering them on. Then out came the razor blades. Near hysteria, the crowd cheered and shouted for blood but when one gang member got cut across his neck, everyone shut up. A siren had started up somewhere nearby and the crowed quickly scattered. **When the police got there, the first thing they saw was the gang member that the razor blade had sliced. / When the police got there, the first thing they saw was the razor blade that had sliced the gang member.**

8. Marge shifted the baby to her other arm. She was hot and her back was starting to hurt. She didn't really want to be here, listening to this boring speaker give his boring speech. She tried to see her husband who was supposed to be beside the speaker. **But with the sun in her eyes, she couldn't even see the speaker that a plane was drowning out. / But with the sun in her eyes, she couldn't even see a plane that was drowning out the speaker.**

9. Greta had always considered herself to be a bit of a daredevil when it came to her motorcycle. She drove it hard and she drove it fast. But when she turned down 8th street, she knew that was going to end. In the middle of the road were two movers holding a couch and talking. Greta braked hard. **She just barely missed the movers who were talking to a little girl. / She just barely missed a little girl who was talking to the movers.**

10. Carie walked around the old broken down house. She was surprised it was still standing. When she was a little girl, everyone, even adults, used to throw rocks at it, or pull off clapboards to use on their own houses. She had truly loved this house, and every time someone defaced it, it had hurt her a little. **She remembered a gazebo that a little boy had burned down. / She remembered a little boy that had burned down a gazebo.** How she had cried that day.

11. Mark thought he had seen everything and so he wasn't afraid of anything. Maybe that was why he had gotten this assignment. **But then he saw a nuclear explosion that made a huge mushroom cloud. / But then he saw a huge mushroom cloud that a nuclear explosion made.** After that, he was sure he had seen everything. He also never flew a plane again.

12. At night, people walked with the heads down, not daring to look one way or the other. They didn't want to see any one, and they didn't want any one to see their fear. **It wasn't surprising that no one saw a man that shot a storekeeper. / It wasn't surprising that no one saw a storekeeper that a man shot.** It was just another crime and if it wasn't against them, no one cared.

13. Mathew sat in the park eating his lunch. Several feet away, a young businessman was eating his soup and sandwich very daintily, carefully dabbing his mouth and brushing away his crumbs, ignoring everything around him. A small breeze came along, and ruffled the man's toupee. Horrified the man quickly grabbed at his hair. Mathew couldn't help it. **He had to laugh at a mime who was imitating the man. / He had to laugh at the man whom a mime was imitating.**

14. The last time Angie remembered seeing the rent money it was in her grey purse. That didn't necessarily mean it was still in there. But she couldn't be sure because she couldn't find her grey purse either. She hated when she misplaced things. **Frantically, Angie looked for the money that her purse had contained. / Frantically, Angie looked for the purse that had contained the money.**

15. Danielle couldn't believe she was getting a ticket. She certainly hadn't see any stop sign. She demanded to know where the stop sign she failed to stop for was. **Politely, the police officer pointed to a tree that was obscuring the stop sign. / Politely, the police-officer pointed to the stop sign that a tree was obscuring.** Enraged, Danielle tore up the ticket, swore at the cop, and sped off.

16. Marlene was a little afraid of the thunder and the lightening. She knew it was silly to be afraid, but she couldn't help it. A loud round of thunder had prompted her to get out of her chair and go to the window and snapped the curtains shut. **Luckily Marlene didn't see the lightening that struck a man. / Luckily, Marlene didn't see a man that the lightening struck.** She would have been terrified. Instead, she returned to her chair and tried to ignore the storm by burying herself in her novel.

Section III

Read each paragraph carefully, and evaluate the sentences presented in bold. Indicate which sentence you prefer by underlining it.

1. Wishing she was anywhere but here, Melanie sat on the bus and tried not to touch the person sitting next to her. She thought he was a little creepy looking, with long greasy hair and unwashed jeans that smelled. When he spoke she almost screamed. **Terrified, she stared at a knife that the young man was holding. / Terrified, she stared at the young man who was holding a knife.** It took a lot of courage, but Melanie punched him in the face and ran to the front of bus, screaming. Unfortunately, the bus stopped, and the man ran off.

2. George felt very awkward standing next to the mother and her teenage son as they argued vehemently. He wished they, or he, had gone to a different check-out. But when they actually spit at each other, he just couldn't stand there anymore. **He pushed past the teenager that was arguing with the mother. / He pushed past the mother that the teenager was arguing with.** It was worth a longer wait to stand in another line.

3. Darcy had never liked having a gun in the house, especially since his father just kept it in a glass-door cabinet. But right now, it wasn't a matter of liking or disliking the gun. **Right now, he was afraid of an intruder that was holding the gun. / Right now, he was afraid of the gun that an intruder was holding.** He didn't really have time to be angry at his father. Maybe later, if he was lucky, he would be.

4. Ryan was repulsed by the drunk that staggered by him and into a street sign. Both the drunken man and the street sign fell over. **Disgusted, Ryan stepped around the man that had knocked over the street sign. / Disgusted, Ryan stepped around the street sign that the man had knocked over.** It was the kind of thing that should happen in other peoples neighbourhoods and not his.

5. Greg had a very bitter outlook on life. He was convinced that no one in the world was ever truly happy. **Perhaps he had never seen a small child that a simple toy amused. / Perhaps he had never seen a simple toy that amused a small child.** Whatever he had missed, no one knew, but with his way of looking at things, he would never see it now.

6. Shane loved being outside. He loved to feel the sun and the cool summer breezes. Most of all he liked to lie on the sandy banks and dangle his feet in the, slow-moving water of the stream. **Overhead, the sun warmed a river that the stream fed. / Overhead, the sun warmed the stream that fed a river.**

7. Fran was busy and didn't have time for petty squabbles. She had been given a copy of a 'poison-pen' memo that had been circulated around the office and concerned one of their clerks. She was supposed to meet with the clerk in ten minutes. **But honestly, she just didn't care about the clerk that the memo upset. / But honestly, she just didn't care about the memo that upset the clerk.** She had more important things on her mind, like the company's severe cash flow problem.

8. Dave felt a little bit foolish, but he was tired and he needed a rest. He was sure that everyone walking by was staring at him and laughing. Even if he didn't hear them laughing, he knew they were laughing at him. **But actually, no one looked twice at the man that a stuffed gorilla was leaning against. / But actually, no one looked twice at a stuffed gorilla that was leaning against the man.** Feeling rested, and really wanting to get this stuffed gorilla to the warehouse, Dave set-off down the sidewalk dragging the gorilla beside him.

9. Jeremy thought the party was going well. If only he could find the guest of honour He had searched everywhere except the kitchen. **But when he pushed open the kitchen door, it bumped against the guest who was fondling a cook. / But when he pushed open the kitchen door, it bumped against a cook whom the guest was fondling.** Unsure what to do, Jeremy returned to the party, tight-lipped and red-faced.

10. **Tony was startled to see a large statue that an artist was wrapping in red velvet. / Tony was startled to see an artist who was wrapping a large statue in red velvet.** It just wasn't what you expected to see when you looked out your window first thing in the morning. Maybe if he was living on the lower east side, he would have expected this. Calmly, he closed his kitchen curtains and went into the bathroom to shave.

11. Mat liked doing odd jobs for other people. Everyday meant something different. He thoroughly enjoyed other people's idiosyncrasies. **Yesterday, someone wanted him to re-enamel a washing machine that didn't match a dryer. / Yesterday, someone wanted him to re-enamel a dryer that a washing machine didn't match.** Why anyone would want turquoise appliances he didn't know? Some people just have more money than taste.

12. Samuel stood looking at the grave. A light snow had started falling. **He remembered a little boy that had admired an astronaut. / He remembered an astronaut that a little boy had admired.** But the astronaut was dead and the little boy was now a grown-up standing in the snow.

13. John sat in the waiting room of the emergency ward. Across from him was a slightly older man. From him, came an awful stench of alcohol. John tried to block the room out of his mind **But try as he might, John couldn't ignore a woman that kept slapping the old man. / But try as he might, John couldn't ignore the old man that a woman kept slapping.** He wished he could wait in a separate room.

14. Marcus wanted the leather coat and matching boots that were in the front window of the store. He liked to wear expensive clothes, he just couldn't afford them. "Maybe," he thought, "if I skip eating lunch for the next five weeks." But that was no good. **He still wouldn't be able to afford the coat that the boots matched. / He still wouldn't be able to afford the boots that matched the coat.**

15. Usually, when Jimmy lay in his hammock, he smelled the cherry blossoms or freshly mown lawns. But today, all he could smell was smoke. Jimmy shaded his eyes and stared in the direction of the sun. **Far off, he could see a pulpmill that was producing the smoke. / Far off, he could see the smoke that a pulpmill was producing.** It had only started operations a few weeks ago and this was the first time the wind had come from the west. Jimmy was not impressed.

16. Barb walked down the path with a long purposeful stride even though she really wasn't going anywhere. She always walked the same path and took her break at the same spot, near an old fir tree with a crooked trunk. It was at the end of the path and it gave good shade. Today was no exception. Barb walked the same path she always did with the same purposeful gait until she came to its end. **Then, she sat down beside the tree that was shading a sunbather. / Then, she sat down beside a sunbather that the tree was shading.** After a ten minute rest, she got up, and returned the same way she had come.